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## **2006 MICHIGAN BLACK BEAR HUNTER SURVEY**

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### **ABSTRACT**

*A random sample of bear hunters was contacted after the 2006 hunting season to determine hunter participation, hunting methods, bear harvest, and hunter satisfaction. In 2006, an estimated 8,900 hunters spent nearly 60,700 days afield and harvested about 2,639 bears; an increase of nearly 20% from 2005. Statewide, 30% of hunters harvested a bear. Baiting was the most common hunting method used to harvest bears, although hunters using dogs had greater hunting success than hunters using bait only. Statewide, about 58% of hunters rated their hunting experience as very good or good. Most hunters (72%) approved of the preference-point system for the distribution of hunting licenses.*

### **INTRODUCTION**

Beginning in 1990, the Michigan Department of Natural Resources (DNR) created black bear (*Ursus americanus*) management units and limited the number of bear hunting licenses issued for each unit. Before 1990, an unlimited number of bear licenses were sold, and licenses were valid in all areas open to bear hunting. In 2000, the DNR modified the licensing system by implementing a zone and quota system based on preference points for issuing bear hunting licenses. Under this system, hunters received one preference point if they applied for a hunt but were not selected in the drawing. Hunters also could obtain a preference point by completing an application but forgoing the drawing. Applicants with the greatest number of preference points had the greatest chance of being selected for a hunt, except that no more than 2% of the licenses were issued to nonresidents.

In 2006, ten bear management units in Michigan, totaling about 31,267 square miles, were open for bear hunting (Figure 1). Bear could be hunted September 10-October 26 in most of



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the Upper Peninsula (UP) units, except the Drummond Management Unit (September 10-16) and in the northern Lower Peninsula (LP) units (September 22-28). The Red Oak Management Unit in the LP also had an archery-only hunt during October 6-12. The DNR set license quotas for each management unit and allocated 11,845 licenses among 41,188 eligible applicants using the preference-point distribution system. Licenses were valid on all land ownership types and allowed a hunter to take one bear of either sex, excluding cubs and female bears with cubs. Bear could be harvested with either a firearm or archery equipment, except for the special archery-only hunt in the Red Oak Management Unit. Hunters could use bait or dogs to hunt bears (except dogs could not be used during September 10-14 in the UP, excluding Drummond Island, and during the archery-only season in the Red Oak Management Unit).

The 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 its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys. Estimates derived from harvest surveys, as well as harvest reported by hunters at mandatory registration stations, and other indices, are used to monitor bear populations and establish harvest regulations.

## **METHODS**

Following the 2006 bear hunting season, a questionnaire (Appendix A) was sent to 3,643 randomly selected people (Table 1) that had purchased a bear hunting license (resident, senior, nonresident bear licenses, and comprehensive lifetime license). Hunters receiving the questionnaire were asked to report whether they hunted, number of days spent afield, whether they harvested a bear, date of harvest, and their hunting methods. Hunters also reported whether other hunters (including bear hunters) caused interference during their hunt. In addition, hunters rated the status of the bear population compared to last year (i.e., more, same, fewer bear, or unknown). Successful hunters were asked to report harvest date, sex of the bear taken, and harvest method. All hunters were asked to rate their overall hunting experience and indicate whether they approved of the preference-point system used to distribute hunting licenses. Finally, all hunters were asked what factors were important for selecting their hunting location.

Estimates were based on information collected from random samples of hunting license buyers. Thus, these estimates were subject to sampling errors (Cochran 1977). Estimates were calculated using a stratified random sampling design (Cochran 1977) and were presented along with their 95% confidence limit (CL). The statewide estimate of the mean number of days required to harvest a bear was calculated using a different ratio for each stratum (i.e., separate ratio estimator). The number of bears registered in each stratum was used as an auxiliary variate to improve the precision of ratio estimates (Cochran 1977).

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 early November 2006, and up to two follow-up questionnaires were mailed to nonrespondents. Although 3,643 people were sent the questionnaire, 33 surveys were undeliverable, resulting in an adjusted sample size of 3,610. Questionnaires were returned by 3,020 people, yielding an 84% adjusted response rate.

## RESULTS

In 2006, 9,456 bear hunting licenses were purchased, nearly unchanged from 2005 (Table 1). Most of the people buying a license were men (91%), and the average age of the license buyers was 46 years (Figure 2). About 3% of the license buyers (257) were younger than 17 years old.

Nearly  $94 \pm 1\%$  of the license buyers hunted bear (Table 2). These hunters spent 60,702 days afield ( $\bar{x} = 6.8$  days/hunter) and harvested 2,639 bears. Harvest increased nearly 19% from 2005 (Figure 3). Counties having the highest number of bear hunters and bears harvested included Baraga, Marquette, and Ontonagon (Table 3).

The average number of days required to harvest a bear statewide was  $23 \pm 2$  days in 2006, which was significantly less than in 2005 (Figure 4). Statewide mean effort per harvested bear in 2006 was nearly identical to the 1992 estimate; however, the mean effort per harvested bear has been significantly higher during many years between 1992 and 2006. Mean effort per harvested bear declined in each ecological region between 2005 and 2006 (Figure 5), although the decline was significant only in the LP. Long-term trends are difficult to interpret because hunting seasons have been lengthened and hunt periods and areas have been added since 1992; therefore, these annual estimates are not directly comparable. In 1994, most early hunt periods were increased from 37 to 42 days and a third hunt period was added in the Gwinn Unit. In 1995, a third hunt period was added in the Baraga Unit. In 1996, Baldwin and Gladwin units were created, and a third period was added to Bergland, Amasa, Carney, and Newberry units. In 2002, the units in the LP were expanded slightly to coincide with county boundaries. In 2005, the area of the Bladwin Unit was increased slightly with the addition of Leelanau County. The units having the highest and lowest effort per harvested bear have generally been Gladwin and Drummond units, respectively (Figure 6).

About 36% of the bear hunters hunted on private lands only, 43% hunted on public lands only, and 19% hunted on both private and public lands (Table 4). Bear hunters spent 21,143 days

afield on private land, 24,350 days hunting on public land only, and 14,713 days hunting on both private and public lands (Table 5). Of the estimated 2,639 bear harvested in 2006,  $37 \pm 3\%$  of these bears ( $984 \pm 140$ ) were taken on private land. About  $62 \pm 3\%$  of the bears ( $1,632 \pm 141$ ) were taken on public land. A few bear ( $23 \pm 29$ ) were harvested from land of unreported ownership.

For bears that the harvest date was reported, about 47% of these bears were taken during the first ten days of the hunting season (September 10-19; Figure 7). Of the bears harvested,  $63 \pm 3\%$  were males ( $1,650 \pm 142$ ) and  $36 \pm 3\%$  were females ( $960 \pm 141$ ; Table 6). Statewide, 30% of hunters harvested a bear in 2006 (Table 2), significantly higher than last year (Frawley 2006). Hunter success ranged from 17-53% among the bear management units (Table 2).

Most hunters ( $76 \pm 1\%$ ) used only firearms while hunting bear, although  $23 \pm 1\%$  of the hunters used archery equipment only or a combination of firearm and archery equipment (Table 7). Most hunters ( $88 \pm 2\%$ ) used a firearm to harvest their bear, while  $11 \pm 2\%$  used a bow. The weapon used to harvest 1% of the bears was unreported. Most hunters ( $85 \pm 1\%$ ) relied primarily on baiting as a means of locating and attracting bears (Table 8). About 11% ( $\pm 1\%$ ) of hunters relied primarily on dogs alone or a combination of baiting and dogs to locate bears. About 3% of hunters relied on a hunting method not involving dogs or bait.

About  $83 \pm 2\%$  of the harvested bears were taken with the aid of bait only (Table 9). Hunting success for hunters using bait only was  $29 \pm 2\%$ , while hunting success for hunters using dogs was  $37 \pm 5\%$  in 2006.

Statewide, about  $58 \pm 2\%$  of hunters rated their hunting experiences as very good or good and  $21 \pm 1\%$  rated their hunting experiences as poor or very poor (Tables 3 and 10). Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Figure 8). In 2006,  $24\% \pm 1\%$  of the hunters ( $2,139 \pm 123$ ) were interfered with by other hunters. Most of this interference was caused by another bear hunter;  $18\% \pm 1\%$  of the hunters ( $1,605 \pm 111$ ) reported that other bear hunters interfered with their hunt. Generally, hunters in the UP were less likely to be interfered with by other hunters than hunters in the LP (Tables 3 and 10, Figure 9).

Nearly 50% of the bear hunters were uncertain whether the status of the bear population in 2006 differed from the status in 2005 (Table 11). About equal proportion of hunters thought bear numbers were lower as higher in 2006 compared to 2005. About 24% of bear hunters reported that bear numbers in 2006 were about the same as last year.

In 2000, a preference-point system was implemented for distributing bear hunting licenses. Hunters were asked whether they approved of this distribution system. Most hunters ( $72 \pm 1\%$ ) approved or strongly approved of the system. About  $14 \pm 1\%$  of the hunters indicated that they were not sure about the system, and  $12 \pm 1\%$  disapproved or strongly disapproved of the system.

Bear hunters were asked which reasons were important for selecting their hunting location (Figure 10). Hunters most frequently cited high bear density as the most important factor used

to select their hunting area ( $64 \pm 2\%$ ). Hunting an area where they experienced low hunting pressure ( $60 \pm 2\%$ ), hunting in a traditional hunting area ( $57 \pm 2\%$ ), and hunting where there were large amounts of public lands ( $53 \pm 2\%$ ) were the next most important reasons to select an area.

## **ACKNOWLEDGEMENTS**

I thank all the bear hunters that provided information. Jaclyn Mapes, Theresa Riebow, and Becky Walker completed data entry. The figure of bear management units and the area open to hunting was prepared by Marshall Strong. Mike Bailey, David Bostick, Dwayne Etter, Pat Lederle, William Moritz, Doug Reeves, and Cheryl Nelson-Flierman reviewed a previous version of this report.

## **LITERATURE CITED**

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Figure 1. Bear management units open to hunting in Michigan, 2006.

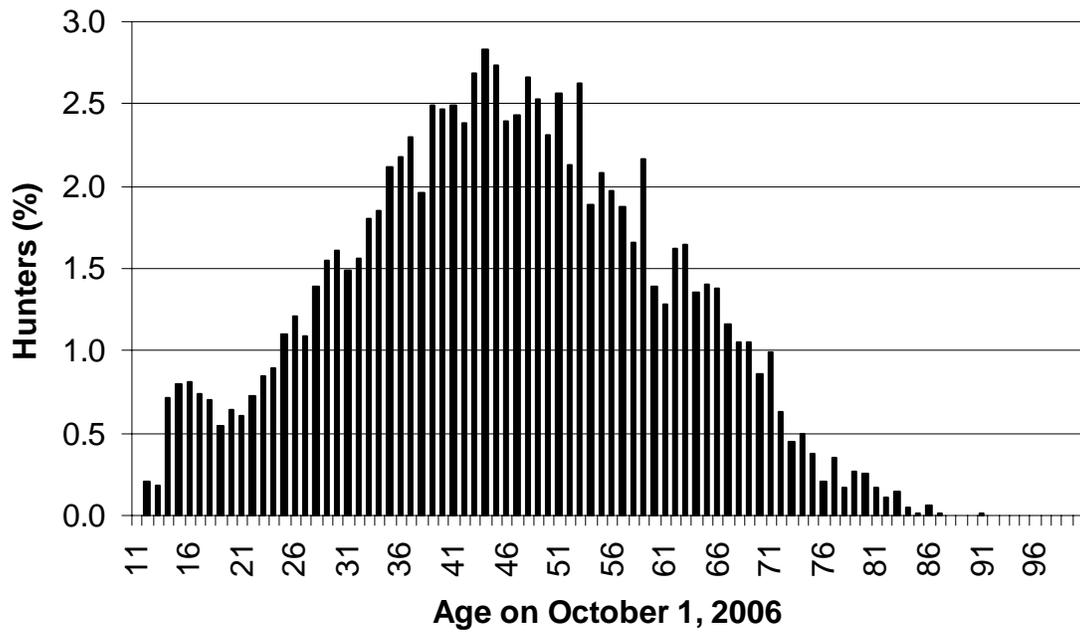


Figure 2. Age of people that purchased a bear hunting license in Michigan for the 2006 hunting season ( $\bar{x}$  = 46 years). Licenses were purchased by 9,456 people.

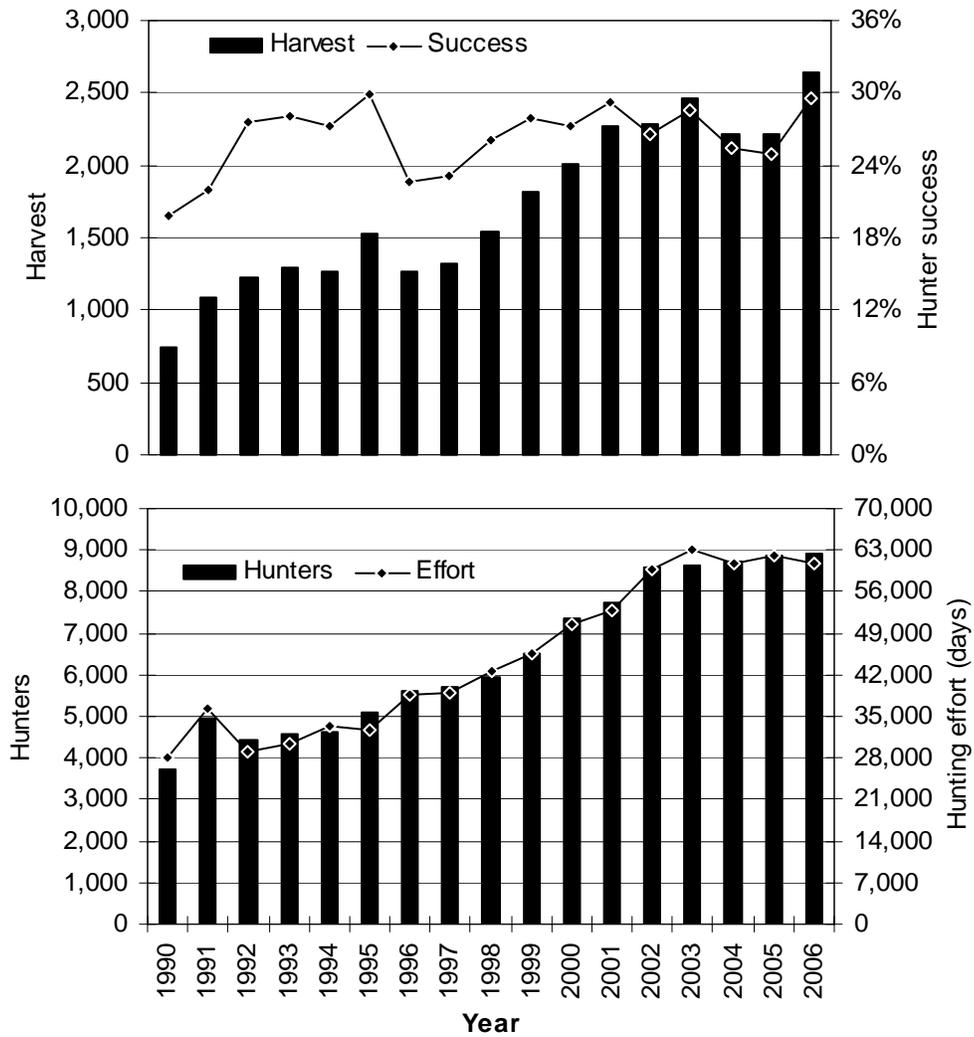


Figure 3. Estimated harvest, hunting success, number of hunters, and hunting effort during bear hunting seasons, 1990-2006.

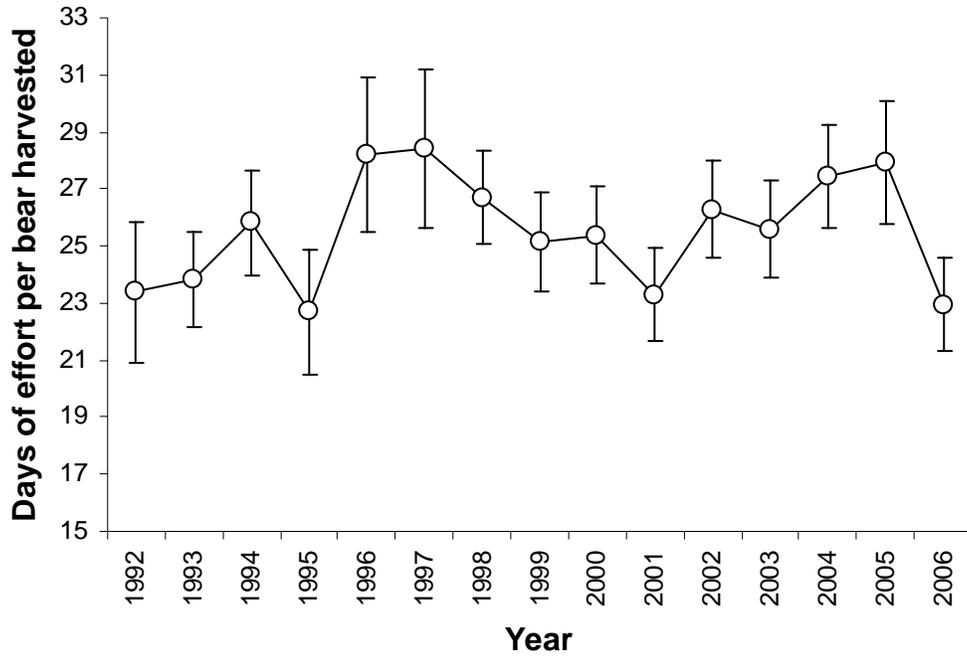


Figure 4. Estimated mean number of days required to harvest a bear statewide in Michigan during 1992-2006. Vertical bars represent the 95% confidence interval.

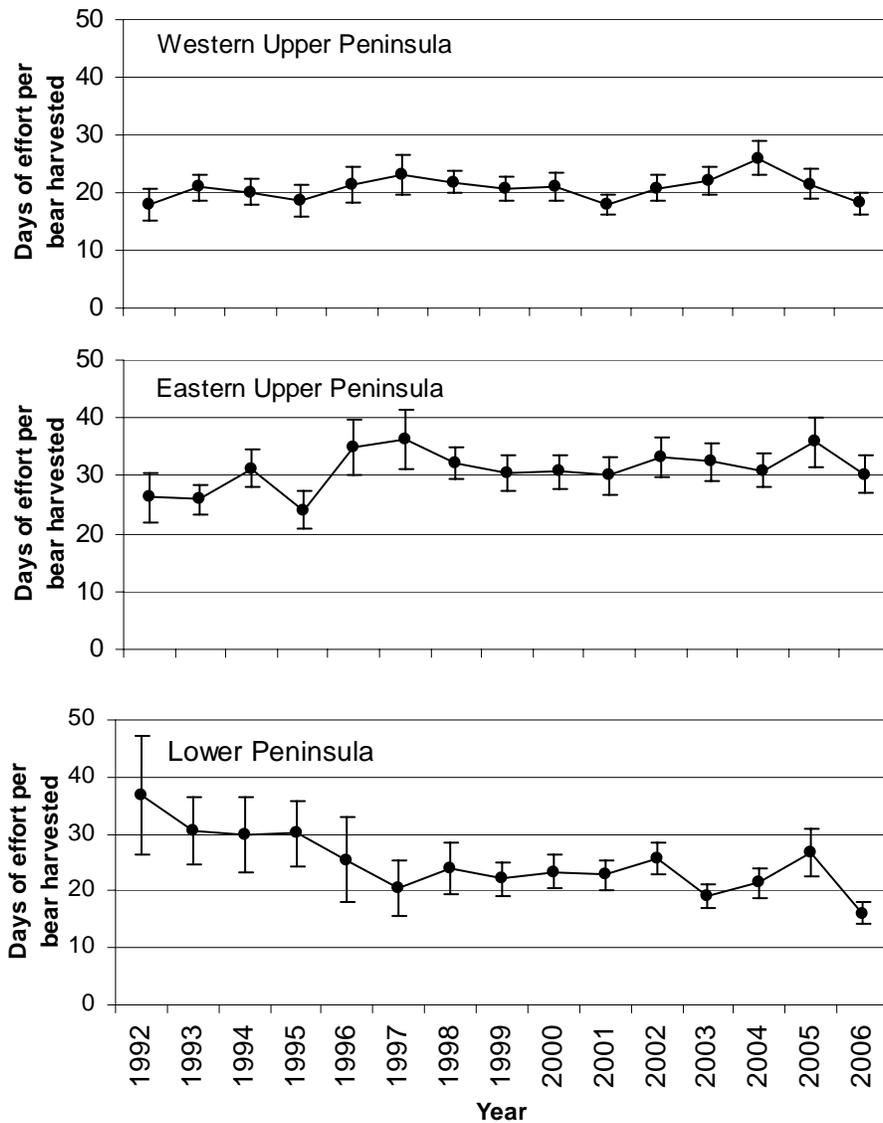


Figure 5. Estimated mean number of days required to harvest a bear in Michigan during 1992-2006, summarized by ecological region. Western UP consisted of Amasa, Baraga, and Bergland units, and eastern UP consisted of Carney, Gwinn, and Newberry units. Lower Peninsula consisted of Baldwin, Gladwin, and Red Oak units. Vertical bars represent the 95% confidence interval.

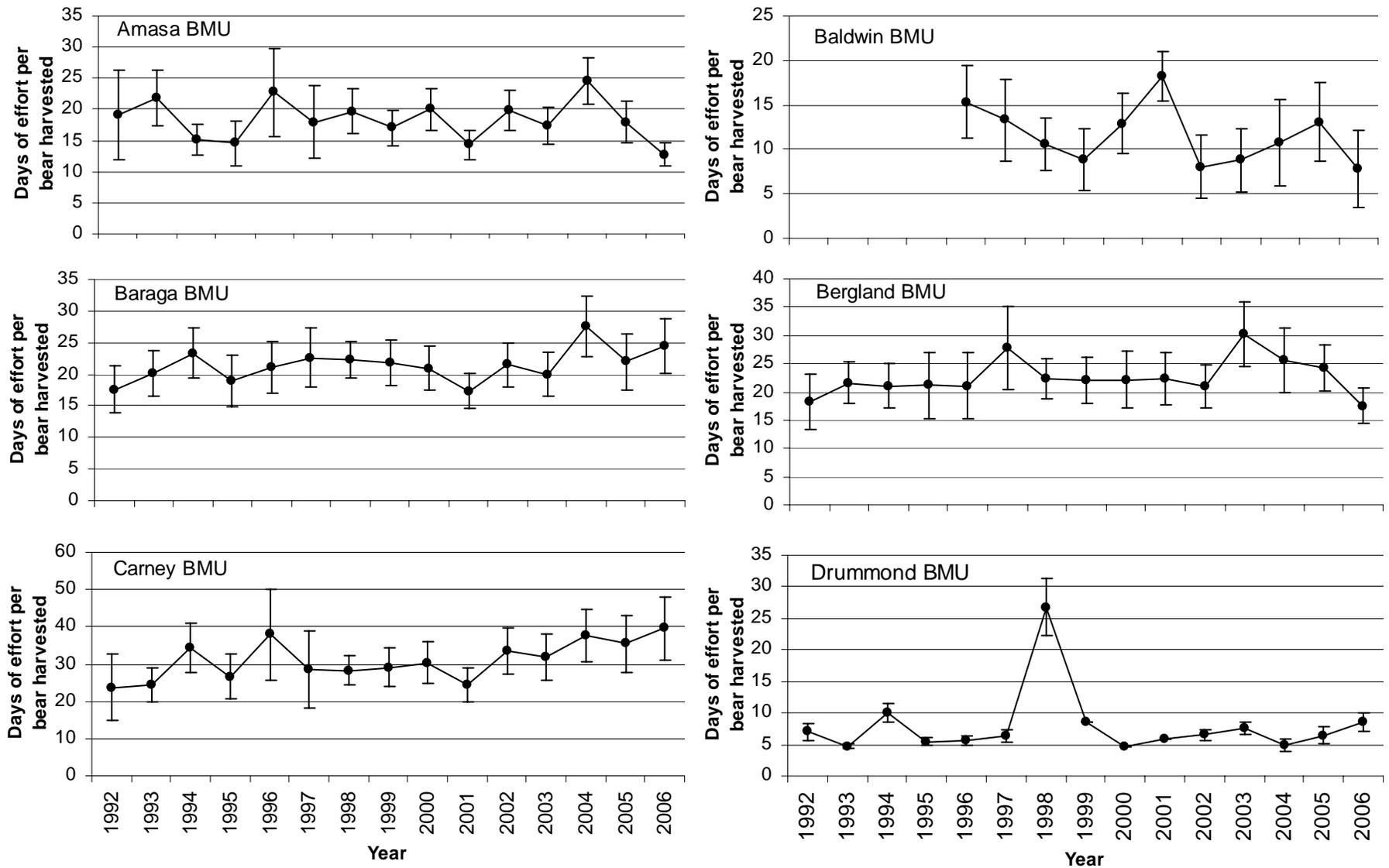


Figure 6. Estimated mean number of days required to harvest a bear in Michigan during 1992-2006, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.

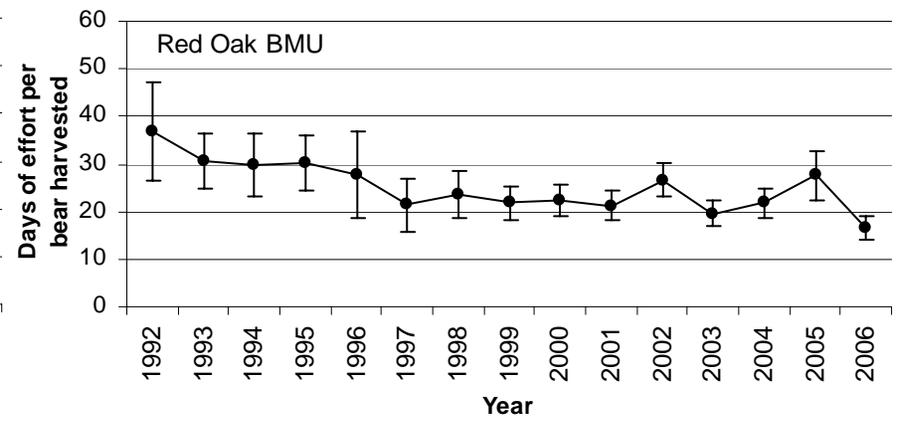
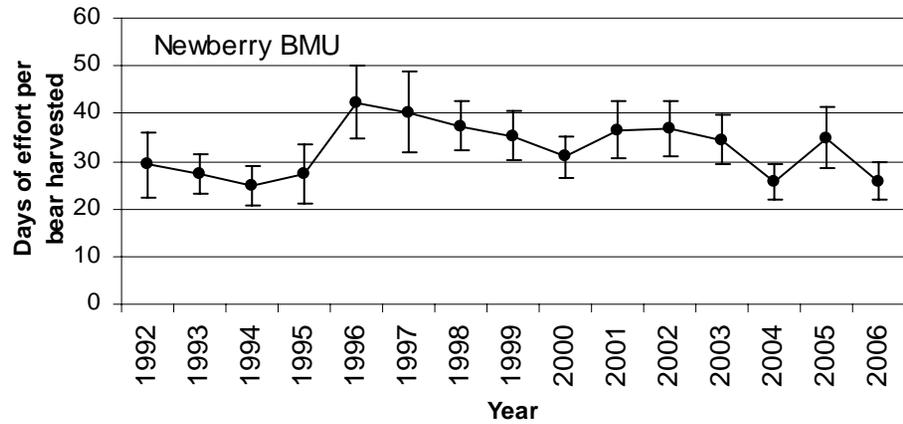
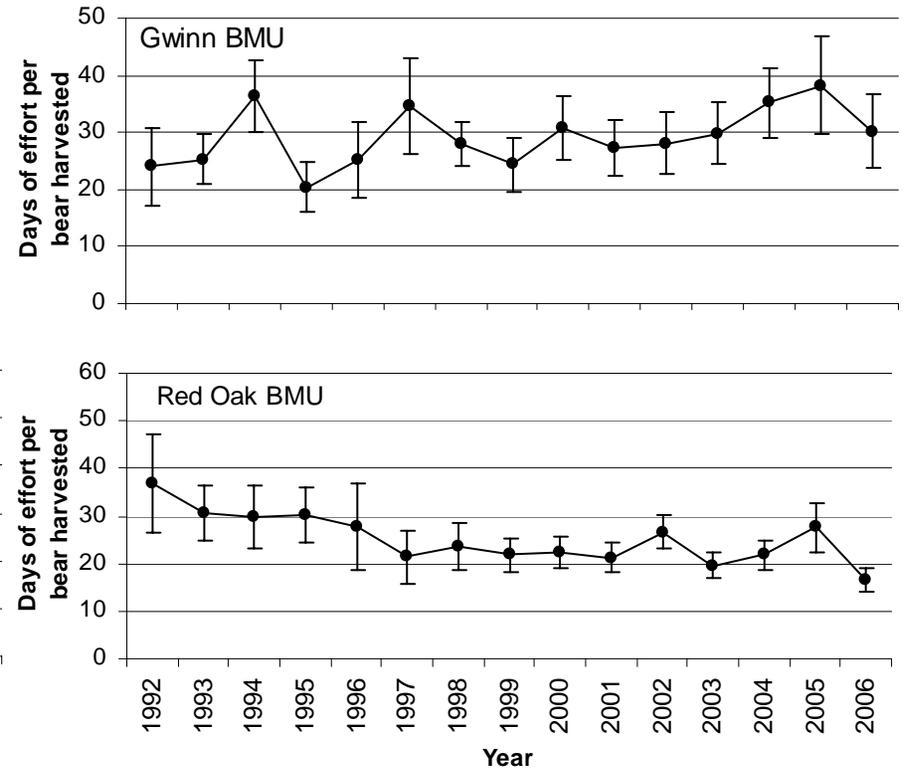
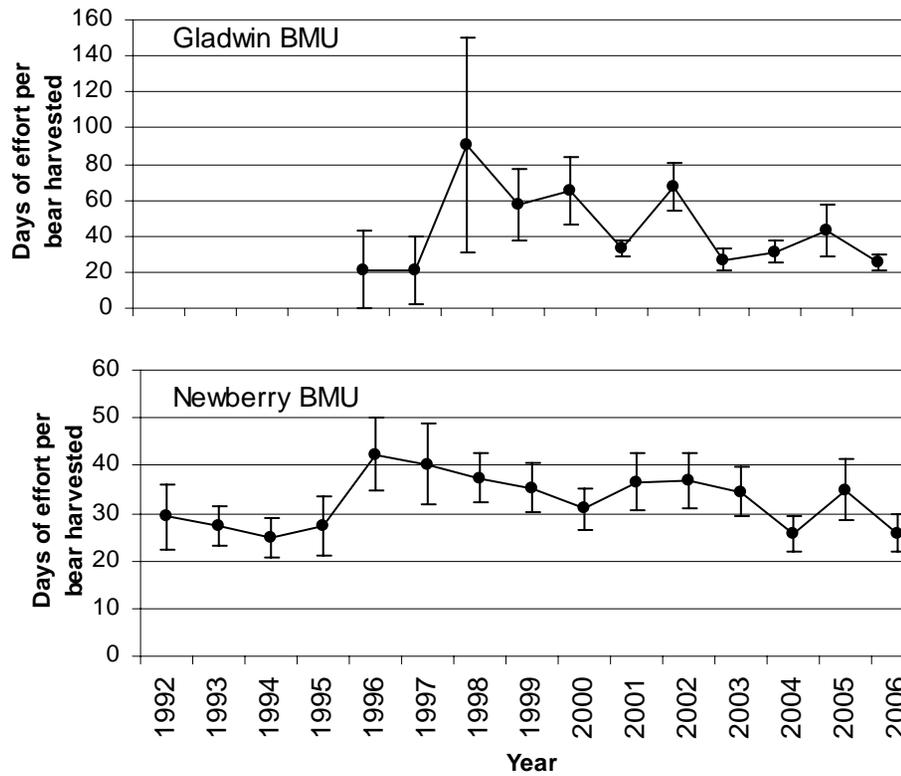


Figure 6 (continued). Estimated mean number of days required to harvest a bear in Michigan during 1992-2006, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.

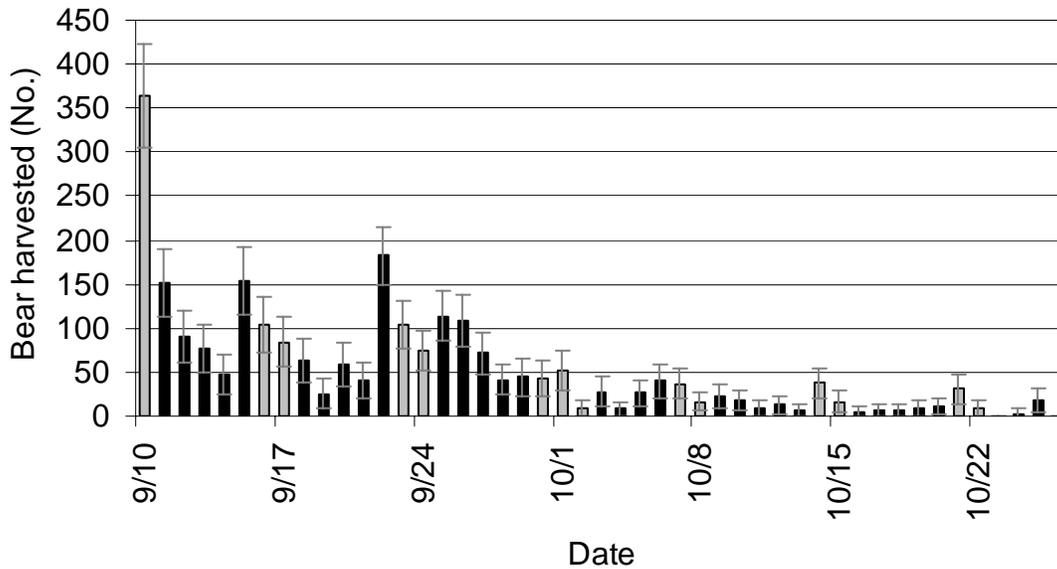


Figure 7. Estimated number of bear harvested by date during the 2006 bear hunting season (includes all hunt periods). An additional  $148 \pm 38$  bear were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval. The opening of the bear hunting season was September 10 in the UP and September 22 in the LP. Hunting with dogs in the UP started on September 15.

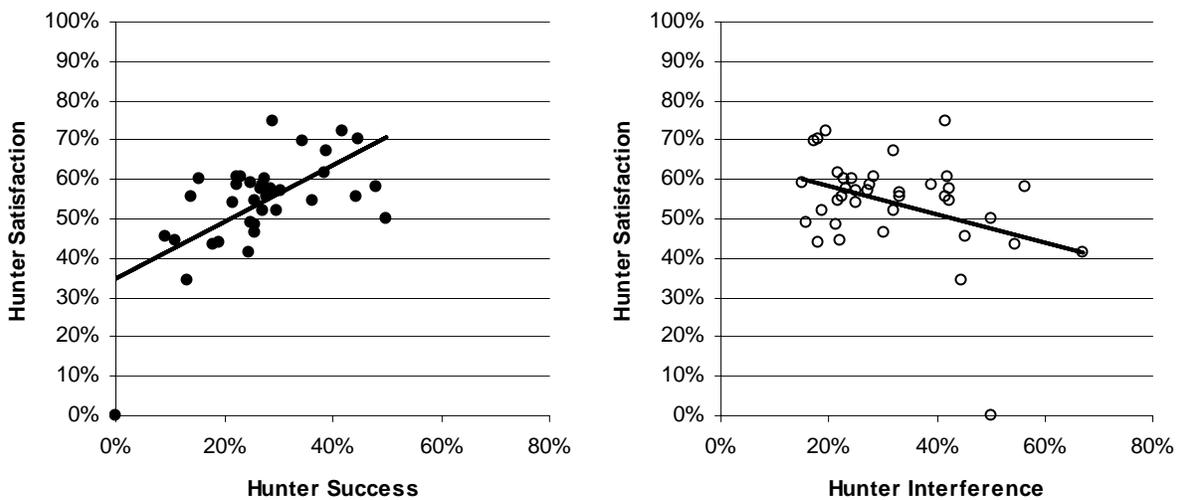


Figure 8. Hunter satisfaction (hunters rating their hunting experience as very good or good) relative to hunter success and hunter interference for each of 42 counties in Michigan during the 2006 bear hunting season. Interference was the proportion of hunters that reported interference from other hunters (all types of hunters).

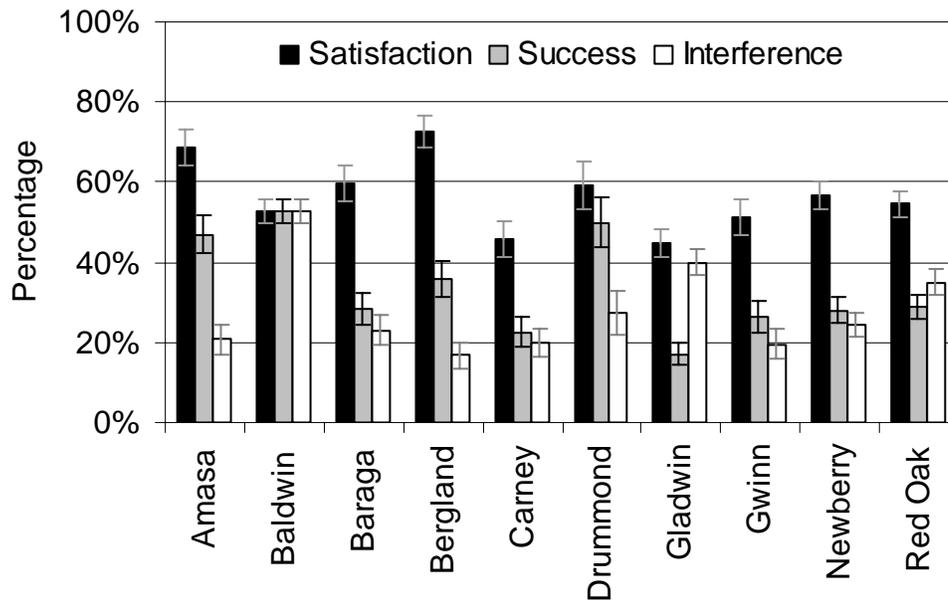
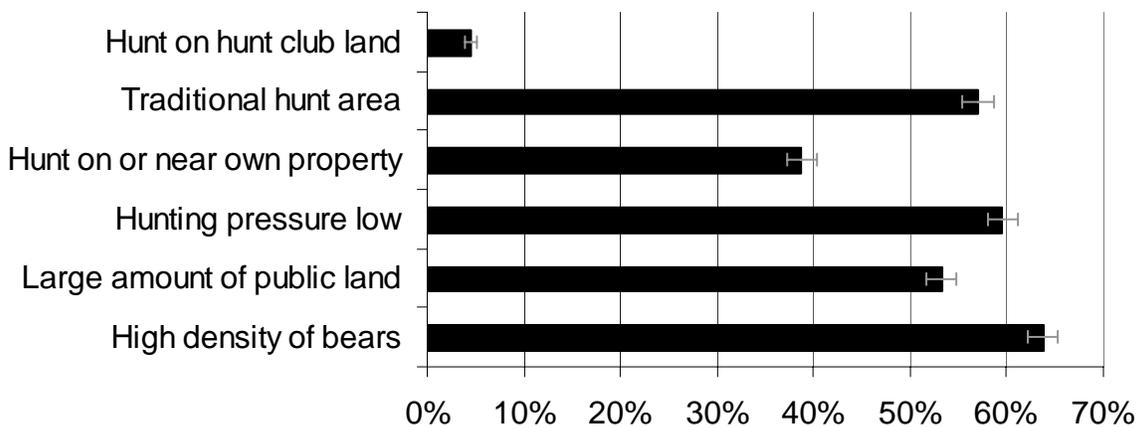


Figure 9. Estimated hunter satisfaction, hunting success, and level of hunter interference in Michigan's management units during the 2006 bear hunting season. Satisfaction measures the proportion of hunters rating their hunting experiences as very good or good. Error bars represent the 95% confidence limit. Interference was the proportion of hunters that reported interference from other hunters (all types of hunters).



Proportion of bear hunters reporting reason as very important or important

Figure 10. Reasons bear hunters cited as important factors in selecting their bear hunting location in Michigan during the 2006 bear hunting season. Error bars represent the 95% confidence limit.

Table 1. Number of people purchasing hunting licenses for the 2006 Michigan bear hunting seasons and number of people selected for survey sample.

Management unit	Licenses available (quota)	Number of eligible applicants	Licenses sold <sup>a</sup>	Number of people included in survey sample
Amasa	590	2,505	520	298
Baldwin	60	2,028	58	58
Baraga	2,410	5,415	1,887	492
Bergland	1,620	2,832	1,226	434
Carney	1,380	2,833	1,063	412
Drummond	25	520	24	24
Gladwin	150	889	129	129
Gwinn	1,430	3,628	1,109	419
Newberry	2,480	8,821	1,957	725
Red Oak	1,700	11,717	1,483	652
Statewide	11,845	41,188	9,456	3,643
Applicants opting for Preference Point <sup>b</sup>		13,862		0

<sup>a</sup>Fewer licenses were sold than the number available because some successful applicants failed to purchase a license.

<sup>b</sup>Applicants that chose to receive a preference point rather than enter into the drawing for a hunting license.

Table 2. Estimated number of hunters, harvest, hunter success, hunting effort, mean days hunted, and mean effort per harvested bear during the 2006 Michigan bear hunting season.

Management Unit	Hunters		Harvest		Hunter success		Hunting effort		Days hunted per hunter ( $\bar{x}$ )		Days hunted per harvested bear ( $\bar{x}$ )	
	No.	95% CL <sup>a</sup>	No.	95% CL <sup>a</sup>	%	95% CL <sup>a</sup>	Days	95% CL <sup>a</sup>	Days	95% CL <sup>a</sup>	Days	95% CL <sup>a</sup>
Amasa	496	10	233	24	47	5	2,977	257	6.0	0.5	12.8	1.9
Baldwin	56	1	30	2	53	3	232	10	4.2	0.2	7.9	0.7
Baraga	1,767	40	503	73	28	4	12,294	1103	7.0	0.6	24.4	4.4
Bergland	1,154	25	413	51	36	4	7,253	567	6.3	0.5	17.6	3.1
Carney	993	23	224	37	23	4	8,859	702	8.9	0.7	39.6	8.6
Drummond	24	<1	12	1	50	6	104	7	4.3	0.3	8.6	1.5
Gladwin	120	2	21	3	17	3	518	21	4.3	0.2	25.2	4.6
Gwinn	1,064	19	283	42	27	4	8,528	696	8.0	0.6	30.1	6.5
Newberry	1,812	34	508	58	28	3	13,098	813	7.2	0.4	25.8	3.9
Red Oak	1,432	18	413	44	29	3	6,838	333	4.8	0.2	16.6	2.5
Statewide <sup>b</sup>	8,918	69	2,639	130	30	1	60,702	1,832	6.8	0.2	22.9	1.6

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

<sup>b</sup> Column totals may not equal statewide totals because of rounding.

Table 3. Estimated number of hunters, harvest, hunter success, hunting effort, hunter satisfaction, and hunt interference during the 2006 Michigan bear hunting season.

County	Hunters <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunting effort (days) <sup>a</sup>		Hunter satisfaction <sup>b</sup>		Interfered hunters <sup>c</sup>	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Alcona	217	35	64	20	30	8	971	198	52	9	32	8
Alger	253	44	98	29	39	9	1,793	427	62	9	22	8
Alpena	129	28	35	15	27	10	619	160	52	11	19	9
Antrim	24	12	3	4	11	16	107	70	44	26	22	22
Arenac	1	1	1	1	100	<1	2	2	100	<1	100	<1
Baraga	901	84	248	54	28	5	5,536	721	60	6	23	5
Benzie	2	1	1	<1	50	16	9	3	50	16	50	16
Charlevoix	44	17	16	10	36	19	219	108	55	20	43	19
Cheboygan	105	25	29	14	28	11	490	152	57	12	33	12
Chippewa	470	55	134	32	29	6	3,344	562	57	7	27	6
Clare	43	4	6	2	13	4	186	20	34	5	45	6
Crawford	70	21	19	11	27	14	252	92	58	15	42	15
Delta	420	54	105	29	25	6	3,491	638	49	7	16	5
Dickinson	348	49	99	27	28	7	2,378	429	57	7	23	6
Emmet	69	22	11	8	16	11	302	135	60	16	24	14
Gladwin	41	4	6	2	14	4	194	20	56	6	42	6
Gogebic	479	53	201	40	42	7	3,055	532	72	6	19	6

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as very good or good.

<sup>c</sup>Proportion of hunters that indicated that they experienced interference from other hunters (all types of hunters).

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2006 Michigan bear hunting season.

County	Hunters <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunting effort (days) <sup>a</sup>		Hunter satisfaction <sup>b</sup>		Interfered hunters <sup>c</sup>	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Gd. Traverse	1	<1	1	<1	100	<1	1	<1	0	0	0	0
Houghton	430	69	120	40	28	8	2,865	659	56	9	23	8
Iosco	13	2	1	1	9	6	42	10	45	10	45	10
Iron	330	23	148	22	45	6	1,836	227	70	5	18	4
Kalkaska	64	20	19	11	29	14	287	100	75	14	42	16
Keweenaw	150	45	34	22	22	13	1,229	489	58	15	39	15
Lake	26	8	6	1	25	8	65	17	41	13	67	11
Leelanau	0	0	0	0	0	0	0	0	0	0	0	0
Luce	530	59	119	31	22	5	3,409	521	61	6	29	6
Mackinac	238	43	73	25	31	9	1,751	432	57	10	25	8
Manistee	1	<1	1	<1	100	<1	4	2	100	<1	100	<1
Marquette	801	76	206	44	26	5	5,650	741	55	6	22	5
Menominee	626	46	119	29	19	4	5,868	713	44	6	18	4
Missaukee	115	26	27	13	23	10	491	144	60	12	42	12
Montmorency	240	38	62	20	26	7	1,231	231	46	8	30	8
Newaygo	9	1	4	1	44	7	42	7	56	7	33	7
Ogemaw	27	5	7	2	26	7	96	22	49	11	21	7

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as very good or good.

<sup>c</sup>Proportion of hunters that indicated that they experienced interference from other hunters (all types of hunters).

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunt interference during the 2006 Michigan bear hunting season.

County	Hunters <sup>a</sup>		Harvest <sup>a</sup>		Hunter success		Hunting effort (days) <sup>a</sup>		Hunter satisfaction <sup>b</sup>		Interfered hunters <sup>c</sup>	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Ontonagon	663	69	230	46	35	6	3,978	597	70	6	17	5
Osceola	2	1	0	0	0	0	13	4	0	0	50	16
Oscoda	118	27	46	17	39	12	488	140	67	11	32	11
Otsego	75	22	16	10	22	12	371	135	54	15	25	13
Presque Isle	137	29	38	15	27	10	573	144	59	11	28	10
Roscommon	135	28	24	12	18	8	602	152	43	11	55	11
Schoolcraft	368	52	92	28	25	7	2,586	496	59	8	15	6
Wexford	33	6	16	2	48	9	122	26	58	8	56	10
Unreported	691	75	157	36	23	5	4,150	602	54	6	26	5

<sup>a</sup>Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.

<sup>b</sup>Proportion of hunters that rated their hunting experience as very good or good.

<sup>c</sup>Proportion of hunters that indicated that they experienced interference from other hunters (all types of hunters).

Table 4. Estimated number and proportion of hunters hunting on private and public lands during the 2006 bear hunting season.

Management unit	Land type															
	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Amasa	223	24	45	5	184	23	37	5	88	18	18	4	2	3	<1	1
Baldwin	6	1	11	2	25	2	45	3	23	2	42	3	1	<1	2	1
Baraga	551	77	31	4	848	83	48	5	350	66	20	4	19	17	1	1
Bergland	231	43	20	4	651	53	56	4	245	44	21	4	28	16	2	1
Carney	515	46	52	4	260	40	26	4	202	37	20	4	15	11	2	1
Drummond	4	1	18	5	11	1	45	6	9	1	36	6	0	0	0	0
Gladwin	48	4	40	3	59	4	50	3	13	3	10	2	0	0	0	0
Gwinn	379	47	36	4	453	48	43	4	225	40	21	4	6	8	1	1
Newberry	571	61	32	3	832	66	46	3	396	54	22	3	13	11	1	1
Red Oak	719	49	50	3	526	47	37	3	164	31	11	2	24	13	2	1
Statewide	3,246	137	36	1	3,849	144	43	2	1,713	116	19	1	109	32	1	<1

Table 5. Estimated number of days of hunting effort on private and public lands during the 2006 Michigan bear hunting season.

Management unit	Land type							
	Private lands		Public lands		Both private and public lands		Unknown	
	Total	95% CL	Total	95% CL	Total	95% CL	Total	95% CL
Amasa	1,449	245	963	166	554	169	11	16
Baldwin	38	8	99	9	95	9	0	0
Baraga	2,859	553	5,900	891	3,357	933	177	167
Bergland	1,457	377	3,902	497	1,760	425	134	102
Carney	4,920	643	1,875	401	2,034	554	31	46
Drummond	26	7	49	8	28	6	0	0
Gladwin	201	20	263	24	55	12	0	0
Gwinn	2,742	527	3,427	558	2,350	539	10	12
Newberry	4,030	612	5,491	653	3,558	644	20	34
Red Oak	3,422	313	2,381	287	923	227	113	75
Statewide <sup>a</sup>	21,143	1,293	24,350	1,431	14,713	1,464	495	218

<sup>a</sup>Column totals may not equal statewide totals because of rounding errors.

Table 6. Number of applicants, licenses sold, and estimated number of hunters, harvest, hunting effort (days), and hunting success during Michigan bear hunting seasons, 1999-2006.

Region	Year						
	2000	2001	2002	2003	2004	2005	2006
<b>Upper Peninsula</b>							
Applicants	31,277	31,666	29,112	27,344	28,295	28,600	26,554
Licenses sold	6,786	8,337	7,393	7,453	7,558	7,808	7,786
Hunters	6,308	6,492	6,949	6,939	7,062	7,305	7,310
Harvest	1,781	1,990	1,962	2,026	1,834	1,908	2,176
Males (%)	58	59	62	62	63	63	63
Females (%)	40	39	37	38	36	36	36
Unknown (%)	2	2	1	1	1	1	1
Hunter-days	45,403	46,719	51,452	54,333	52,158	53,729	53,113
Hunter success (%)	28	31	28	29	26	26	30
<b>Lower Peninsula</b>							
Applicants	13,887	14,674	14,370	14,297	15,616	15,625	14,634
Licenses sold	1,113	1,544	1,711	1,761	1,737	1,654	1,670
Hunters	1,058	1,247	1,626	1,695	1,653	1,567	1,608
Harvest	230	279	320	439	388	303	463
Males (%)	57	55	70	52	61	58	60
Females (%)	41	45	29	47	38	39	38
Unknown (%)	2	0	1	1	1	3	2
Hunter-days	5,259	6,204	8,465	8,592	8,451	8,250	7,589
Hunter success (%)	22	22	20	26	23	19	29
<b>Statewide</b>							
Applicants <sup>a</sup>	48,696	53,179	51,686	50,908	54,831	57,040	55,050
Licenses sold	7,899	9,881	9,104	9,214	9,295	9,462	9,456
Hunters	7,365	7,739	8,575	8,634	8,714	8,872	8,918
Harvest	2,011	2,268	2,282	2,465	2,221	2,210	2,639
Males (%)	58	58	63	60	62	63	63
Females (%)	40	40	36	39	36	36	36
Unknown (%)	2	2	1	1	1	1	1
Hunter-days	50,664	52,923	59,917	62,925	60,609	61,979	60,702
Hunter success (%)	27	29	27	29	25	25	30

<sup>a</sup>Beginning in 2000, the number of applicants statewide also included people that applied for a preference point.

Table 7. Hunting equipment used to hunt bear in Michigan, 2006.

Equipment	Number of hunters	95% CL <sup>a</sup>	Equipment used (%)
Firearm	6,813	123	
Archery	967	91	
Both firearm and archery	1,126	95	
Unknown	12	10	

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

Table 8. Primary hunting methods used to hunt bear in Michigan, 2006.

Method	Number of hunters	95% CL <sup>a</sup>	Method used (%)
Bait only	7,540	106	
Dogs only	381	60	
Dogs and bait	636	76	
Other	234	49	
Unknown	127	33	

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

Table 9. Hunting methods used to harvest bear in Michigan, 2006.

Method	Number of hunters	95% CL <sup>a</sup>	Method used (%)
Bait only	2,190	109	<p>Dogs Only 6.6%</p> <p>Dogs &amp; Bait 8.6%</p> <p>Other 0.8%</p> <p>Unknown 0.9%</p> <p>Bait Only 83.0%</p>
Dogs only	175	73	
Dogs and bait	228	79	
Other	21	28	
Unknown	24	31	

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

Table 10. Level of hunter success, interference, and satisfaction of bear hunters with their hunting experience in Michigan during the 2006 season.

Management unit	Hunter success (%)	Hunters interfered by other hunters (%) <sup>a</sup>	Hunters interfered by other bear hunters (%)	Satisfaction level (%)					
				Very good	Good	Neutral	Poor	Very poor	No answer
Amasa	47	21	16	31	37	20	8	3	1
Baldwin	53	53	25	32	21	17	17	13	0
Baraga	28	23	18	23	37	21	12	5	1
Bergland	36	17	11	30	43	14	9	3	1
Carney	23	20	13	12	33	28	17	8	1
Drummond	50	27	27	36	23	18	5	18	0
Gladwin	17	40	22	20	25	25	18	11	1
Gwinn	27	20	14	17	34	23	14	9	2
Newberry	28	25	21	22	35	19	15	9	1
Red Oak	29	35	26	23	32	16	15	12	3
Statewide	30	24	18	22	35	20	13	8	2

<sup>a</sup>Includes all types of hunters.

Table 11. Status of bear in Michigan during 2006 compared to 2005 as described by bear hunters, summarized by management unit.

Management unit	Status of bear reported by hunter									
	More		Same		Fewer		Not sure		No answer	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	19	4	28	4	10	3	40	5	3	2
Baldwin	8	2	15	2	4	1	72	3	2	1
Baraga	12	3	23	4	17	3	45	5	3	2
Bergland	15	3	27	4	11	3	45	4	1	1
Carney	9	3	29	4	18	3	42	4	2	1
Drummond	18	5	5	3	9	4	68	6	0	0
Gladwin	9	2	17	3	15	2	55	3	4	1
Gwinn	15	3	24	4	16	3	43	4	3	1
Newberry	11	2	23	3	16	3	49	3	2	1
Red Oak	12	2	18	3	13	2	53	3	4	1
Statewide	13	1	24	1	15	1	46	1	3	1

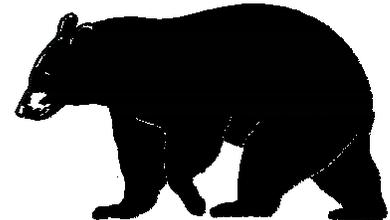
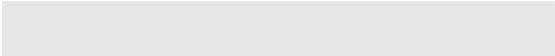
Appendix A

2006 Michigan Bear Harvest Questionnaire



# 2006 MICHIGAN BEAR 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 report even if you did not hunt or harvest a bear.***

1. Did you hunt bear in Michigan during the 2006 season?

- Yes                       No; skip to question 12 on the reverse side

2. Please report the number of days for each county that you hunted bear in the following table.

COUNTY HUNTED <i>(List each county that you hunted for bear)</i>	NUMBER OF DAYS HUNTED	TYPE OF LAND
		<input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Both
		<input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Both
		<input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Both
		<input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Both
		<input type="checkbox"/> Private <input type="checkbox"/> Public <input type="checkbox"/> Both

3. Did you hunt with a firearm, a bow, or with both during the 2006 bear season?

- Firearm                       Bow                       Both

4. What hunting method did you most often use when hunting bear in Michigan during the 2006 bear season? *(please select only one item)*

- Hunted over bait only     Used dogs only (bait not used)
- Used dogs started over bait     Used other methods not involving dogs or bait

5. Was your harvest tag put on a bear? *(If no, please skip to question 7)*

- Yes                       No

***Please continue on back***

6. If your harvest tag was put on a bear, please fill in the information below

a. What date was the bear harvested?  
(please check [X] the box for the date of harvest)

September 2006						
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

October 2006						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26		

b. What was the sex of the bear?    <sup>1</sup>  Male    <sup>2</sup>  Female    <sup>3</sup>  Not sure

c. In what county was it harvested?  
(please write in the county name)

d. On what type of land was the bear harvested?    <sup>1</sup>  Private    <sup>2</sup>  Public

e. What type of weapon was used to harvest bear?    <sup>1</sup>  Firearm    <sup>2</sup>  Bow

f. What was the method of harvest?  
<sup>1</sup>  Taken over bait    <sup>2</sup>  Used dogs (bait not used)  
<sup>3</sup>  Used dogs started over bait    <sup>4</sup>  Used other methods not involving dogs or bait

7. Did other hunters interfere with your bear hunting?    <sup>1</sup>  Yes    <sup>2</sup>  No (skip to question 9)

8. If you answered "yes" to the previous question, was the interference caused by other bear hunters?  
<sup>1</sup>  Yes    <sup>2</sup>  No

9. How would you rate the number of bear present in 2006 compared to last year?  
<sup>1</sup>  More bear    <sup>2</sup>  Same number of bear    <sup>3</sup>  Fewer bear    <sup>4</sup>  Not sure

10. Overall, how would you rate your 2006 bear hunting experiences?  
<sup>1</sup>  Very Good    <sup>2</sup>  Good    <sup>3</sup>  Neutral    <sup>4</sup>  Poor    <sup>5</sup>  Very Poor

11. How important were the following factors for selecting the location where you hunted bear in 2006?

	Very Important	Important	Slightly Important	Not Important	Not Sure
A. The area had a high density of bears.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>
B. The area had a large amount of public land or commercial forest.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>
C. Hunting pressure was low.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>
D. I owned the property where I hunted or it was near my property.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>
E. I have traditionally hunted this area.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>
F. I hunted property owned by a hunt club in this area.	<sup>1</sup> <input type="checkbox"/>	<sup>2</sup> <input type="checkbox"/>	<sup>3</sup> <input type="checkbox"/>	<sup>4</sup> <input type="checkbox"/>	<sup>5</sup> <input type="checkbox"/>

12. In 2000, a preference point system was implemented for distributing bear hunting licenses in Michigan. Which of the following best describes your opinion about the system? (select one)

<sup>1</sup>  Strongly Approve    <sup>2</sup>  Approve    <sup>3</sup>  Not Sure    <sup>4</sup>  Disapprove    <sup>5</sup>  Strongly Disapprove

**Return the completed report in the enclosed postage-paid envelope. Thanks for your help.**