2009 MICHIGAN BLACK BEAR HUNTER SURVEY

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ABSTRACT

A random sample of bear hunters was contacted after the 2009 hunting season to determine hunter participation, hunting methods, bear harvest, and hunter satisfaction. In 2009, an estimated 8,256 hunters spent nearly 60,900 days afield and harvested about 2,210 bears. The number of licenses sold and number of bear harvested decreased by 12 and 11%, respectively, from 2008. Statewide, 27% of hunters harvested a bear in 2009, versus 26% success in 2008. The average number of days required to harvest a bear statewide was 27.3 days in 2009, compared to 26.4 days in 2008. 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 51% of hunters rated their hunting experience as very good or good in 2009 (versus 53% in 2008).

INTRODUCTION

Beginning in 1990, the Michigan Department of Natural Resources and Environment (DNRE) 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 DNRE 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.

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In 2009, ten bear management units in Michigan, totaling about 35,360 square miles, were open for bear hunting (Figure 1). Bear could be hunted September 10-October 26 in all of the Upper Peninsula (UP) units, except the Drummond Island Management Unit (September 10-October 21). Bear could be hunted September 11-26 in Benzie, Leelanau, and Grand Traverse counties and during September 18-26 for remaining counties in the Northern Lower Peninsula (LP) units. The first day of hunt periods in the LP was restricted to hunting with bait only, and the last two days of the hunt periods in the LP were restricted to hunters using dogs. The Red Oak Management Unit in the LP also had an archery-only hunt during October 2-8.

The DNRE set license quotas for each management unit and allocated 11,473 licenses among 39,106 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, crossbow, or archery equipment, except for the special archery-only hunt in the Red Oak Management Unit. Hunters 12-years-old or older could use a crossbow to hunt bear. Hunters using a crossbow were required to obtain a free crossbow stamp, except hunters with a disability already hunting under a DNRE-issued crossbow permit did not need the stamp. Hunters could use bait or dogs to hunt bears (except dogs could not be used during September 10-14 in the UP, excluding the Drummond Island Management Unit, and during the archery-only season in the Red Oak Management Unit).

The DNRE 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 DNRE 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

The DNRE provided all bear hunters the option to report information about their bear hunting activity voluntarily via the internet. This option was advertised on the DNRE website and an email message was sent to all license buyers that had provided an email address to the DNRE (2,477 licensees). Hunters reported 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. Successful hunters were asked to report harvest date, sex of the bear taken, and harvest method. Finally, hunters were asked to report how satisfied they were with the number of bear seen, number of opportunities they had to take a bear, and their overall bear hunting experience. Following the 2009 bear hunting season, a questionnaire (Appendix A) was mailed to 4,299 randomly selected people (Table 1) that had purchased a bear hunting license (resident, senior, nonresident bear licenses, and comprehensive lifetime license) and had not already voluntarily reported harvest information via the internet. Hunters receiving the

questionnaire in the mail were asked the same questions as hunters responding on the internet.

Estimates were calculated using a stratified random sampling design that included eleven strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (10 management units). Hunters that had voluntarily reported information about their hunting activity via the internet were treated as a separate stratum (eleventh stratum). 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.

A 95% confidence limit (CL) was calculated for each estimate. 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 December 2009, and up to two follow-up questionnaires were mailed to nonrespondents. Although 4,299 people were sent the questionnaire, 47 surveys were undeliverable, resulting in an adjusted sample size of 4,252. Questionnaires were returned by 3,371 people, yielding a 79% adjusted response rate. In addition, 713 people voluntarily reported information about their hunting activity via the internet before the random sample was selected.

RESULTS

In 2009, 8,953 bear hunting licenses were purchased (Table 1), a 12% decrease from 2008 (10,178). Most of the people buying a license in 2009 were men (91%), and the average age of the license buyers was 47 years (Figure 2). About 3% of the license buyers (300) were younger than 17 years old.

Nearly $92 \pm 1\%$ of the license buyers hunted bear (Table 2). These hunters spent 60,894 days afield ($\bar{x}$ = 7.4 days/hunter) and harvested 2,210 bears. Harvest decreased by nearly 11% from 2008 (Figure 3). Marquette, Baraga, and Ontonagon counties had the highest number of bear hunters and bears harvested during 2009 (Table 3).

The average number of days required to harvest a bear statewide was 27.3 days in 2009 (Table 2, Figure 4). Statewide and regional estimates of mean effort per harvested bear were not significantly different between 2008 (26.4 days) and 2009 (Figure 4 and 5). Long-term trends are difficult to interpret because hunting seasons have been lengthened and hunt periods and areas have been added since 1992; thus, 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 Management Unit. In 1995, a third hunt period was added in the Baraga Management Unit. In 1996, Baldwin and Gladwin management units were created, and a third period was added to Bergland, Amasa, Carney, and Newberry management units. In 2002, the units in the LP were expanded slightly to coincide with county boundaries. In 2006, the area of the Bladwin Unit was increased slightly with the addition of Leelanau County. The units having the highest effort per harvested bear during recent years have been Carney and Gwinn management units, while Baldwin and Drummond Island management units have had the lowest effort per harvested bear (Figure 6).

About 37% of the bear hunters hunted on private lands only in 2009, 42% hunted on public lands only, and 19% hunted on both private and public lands (Table 4). Bear hunters spent 22,205 days afield on private land, 24,755 days hunting on public land only, and 13,340 days hunting on both private and public lands (Table 5). Of the estimated 2,210 bear harvested in 2009, 41 ± 3% of these bears (899 ± 68) were taken on private land. About 59 ± 3% of the bears (1,311 ± 85) were taken on public land.

For bears that the harvest date was reported, about 24% of these bears were taken during the first five days and 55% during the first ten days of the hunting season (Figure 7). Of the bears harvested, 60 ± 3% were males (1,325 ± 85) and 40 ± 3% were females (875 ± 68; Table 6). Statewide, 27% of hunters harvested a bear in 2009, compared to 26% success in 2008 (Table 2). Hunter success ranged from 18-100% among the bear management units (Table 2).

Most hunters (87%) used firearms while hunting bear, although 18% of the hunters used archery equipment (compound, recurve, or long bows), and 4% used a crossbow (Tables 8 and 9). Most hunters (85%) used a firearm to harvest their bear, while 13% used archery equipment, and 2% used a crossbow (Tables 10 and 11). Hunters using a crossbow to hunt bear were required to obtain a crossbow stamp, unless they were a disabled hunter that already had a DNRE-issued crossbow permit. About 57 ± 7% of the bear hunters using a crossbow had obtained the crossbow stamp.

Most hunters (85 ± 1%) relied primarily on baiting as a means of locating and attracting bears (Table 12). About 10% (±1%) of hunters relied primarily on dogs alone or a combination of baiting and dogs to locate bears. About 2% of hunters relied on a hunting method not involving dogs or bait.

About 86 ± 2% of the harvested bears were taken with the aid of bait only (Table 13). Hunting success for hunters using bait only was 27 ± 1%, while hunting success for hunters using dogs was 32 ± 4% in 2009. Success among hunters using dogs has usually been higher than among hunters using bait only (Figure 8).

About 30% of bear hunters statewide rated the number of bear seen during the 2009 hunting season as very good or good, and 42% rated bear seen as poor or very poor (Table 14). Similarly, about 26% of hunters statewide rated the number of chances they had to take a bear during the 2009 hunting season as very good or good, and 42% rated their chances as poor or very poor (Table 15).

Statewide, about 51% of hunters rated their hunting experiences as very good or good (versus 53% in 2008), and 28% rated their hunting experiences as poor or very poor (Table 16). Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Figure 9). In 2009, 23% of the hunters were interfered with by other hunters (Table 17). Most of this interference was caused by another bear hunter; 18% of the hunters 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 (Table 17, Figure 10).

LITERATURE CITED

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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.

Figure 1. Bear management units open to hunting in Michigan, 2009.
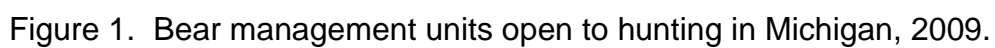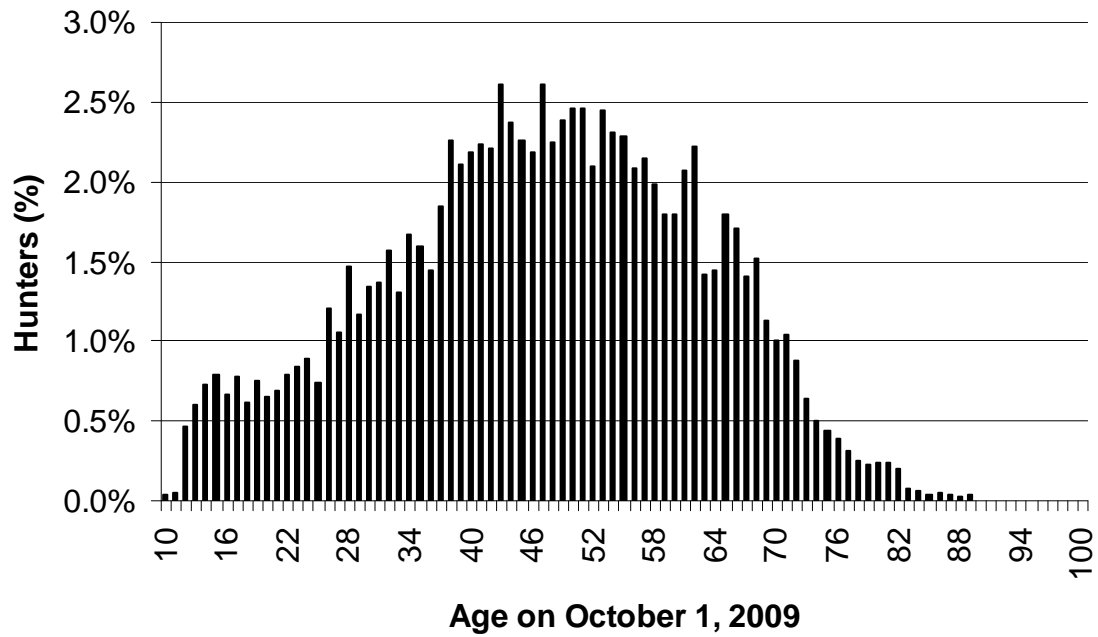
Figure 2. Age of people that purchased a bear hunting license in Michigan for the 2009 hunting season ($\bar{x}$ = 47 years). Licenses were purchased by 8,953 people.
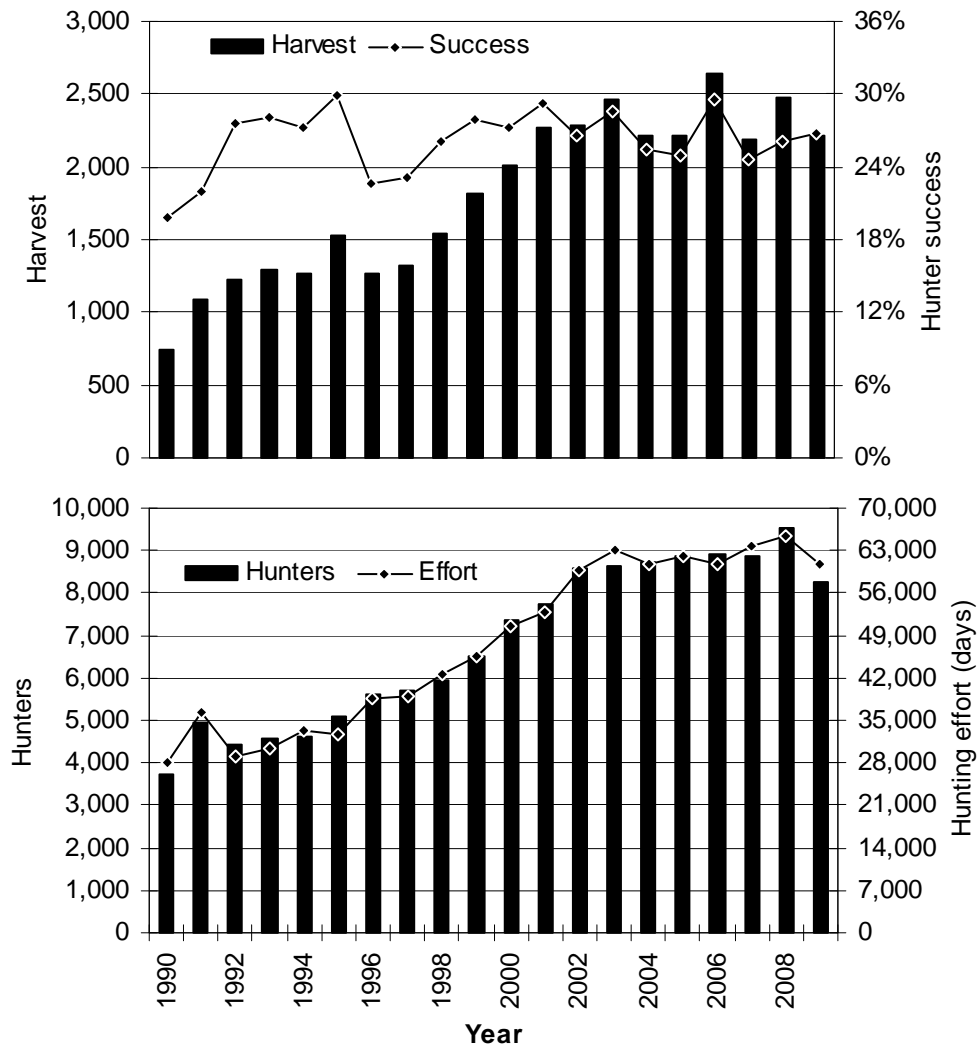
Figure 3. Estimated harvest, hunting success, number of hunters, and hunting effort during bear hunting seasons, 1990-2009.
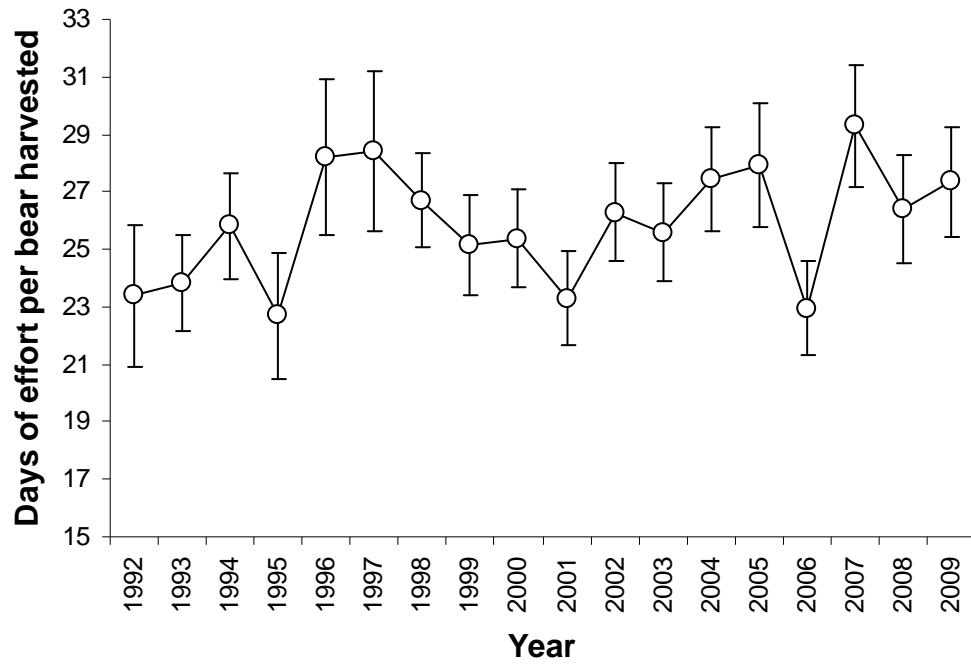
Figure 4. Estimated mean number of days required to harvest a bear statewide in Michigan during 1992-2009. Vertical bars represent the 95% confidence interval.
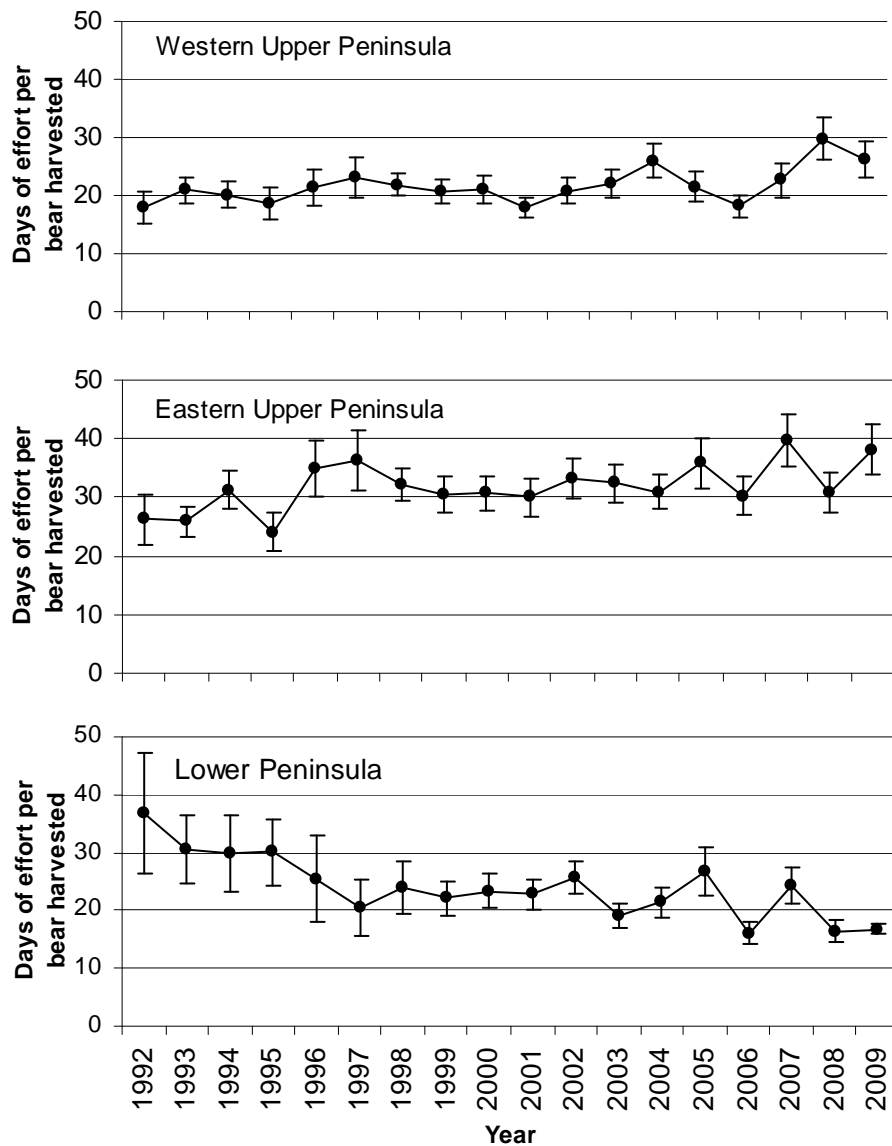
Figure 5. Estimated mean number of days required to harvest a bear in Michigan during 1992-2009, summarized by ecological region. Western UP consisted of Amasa, Baraga, and Bergland units, and Eastern UP consisted of Carney, Gwinn, and Newberry units (Drummond Island Management Unit excluded). Lower Peninsula consisted of Baldwin, Gladwin, and Red Oak management units. Vertical bars represent the 95% confidence interval.
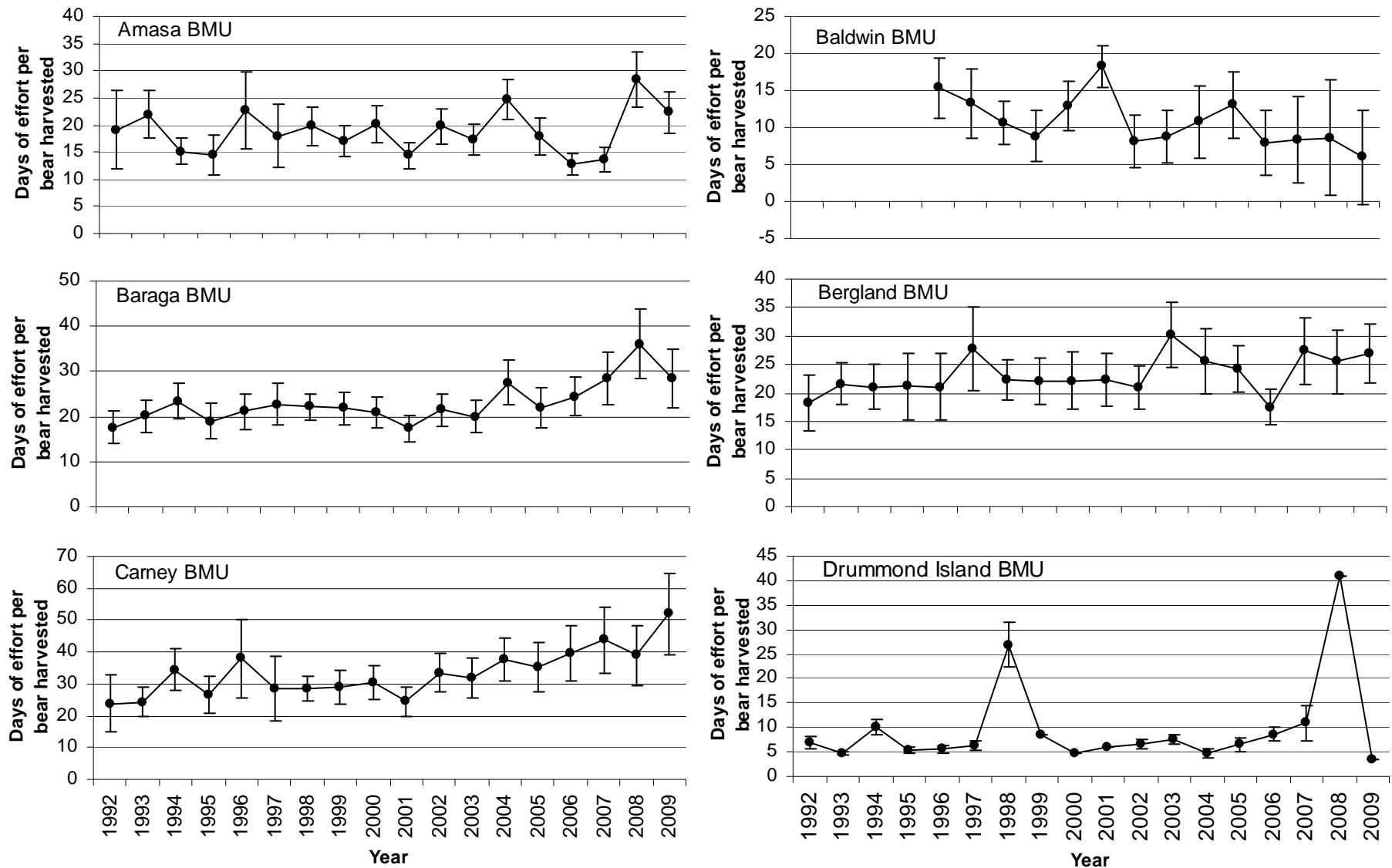
Figure 6. Estimated mean number of days required to harvest a bear in Michigan during 1992-2009, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.
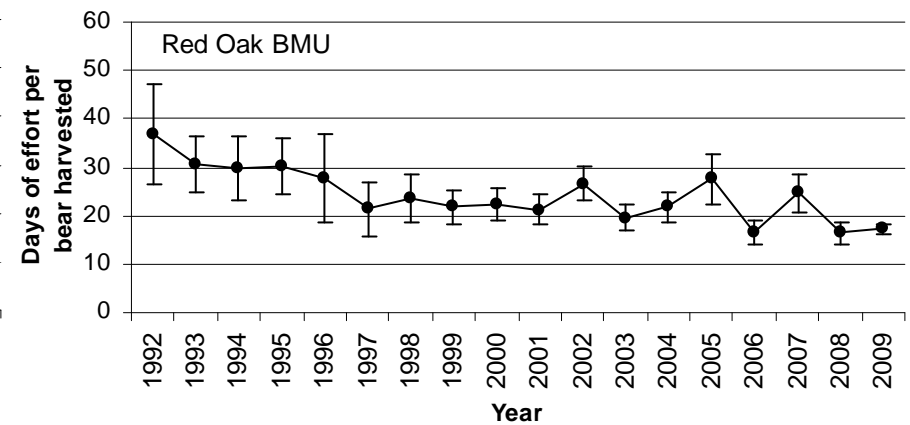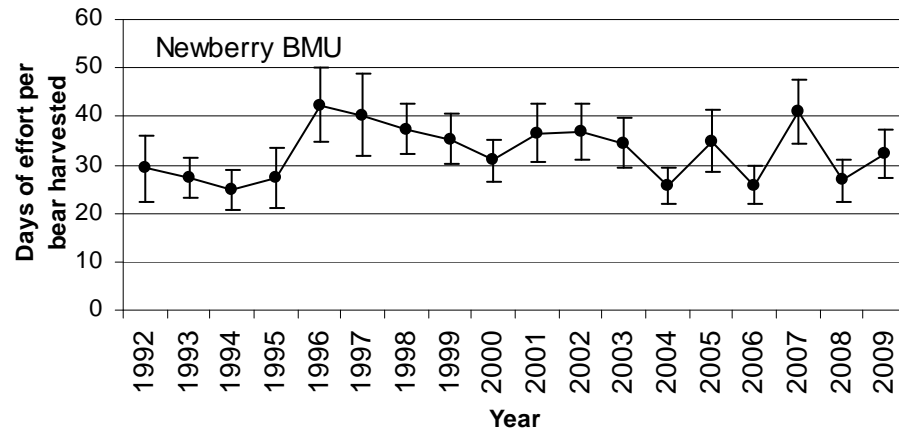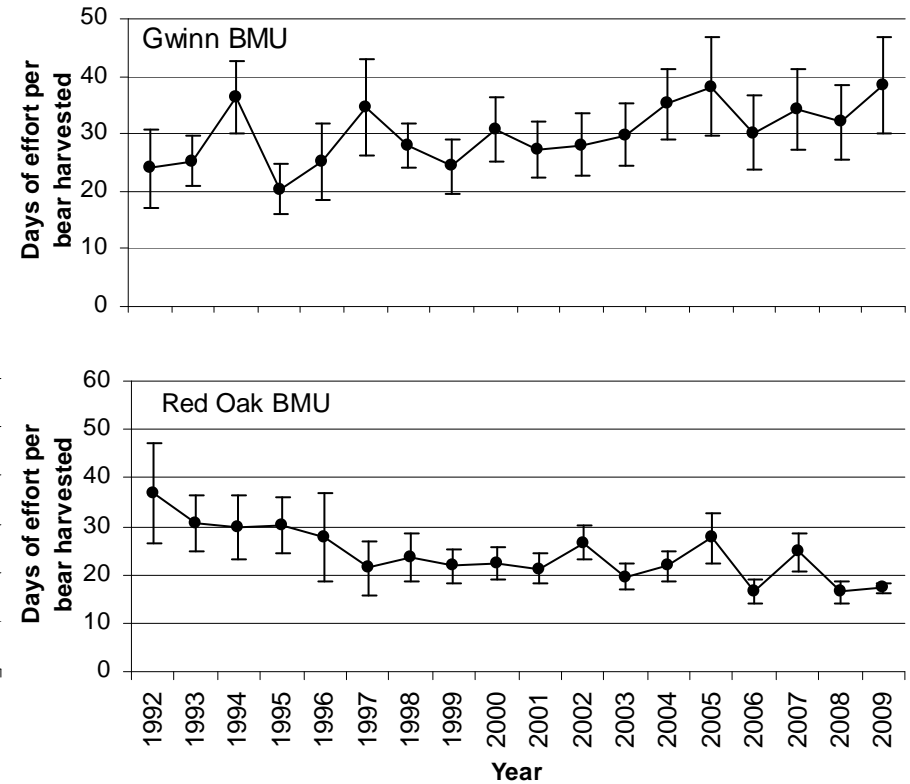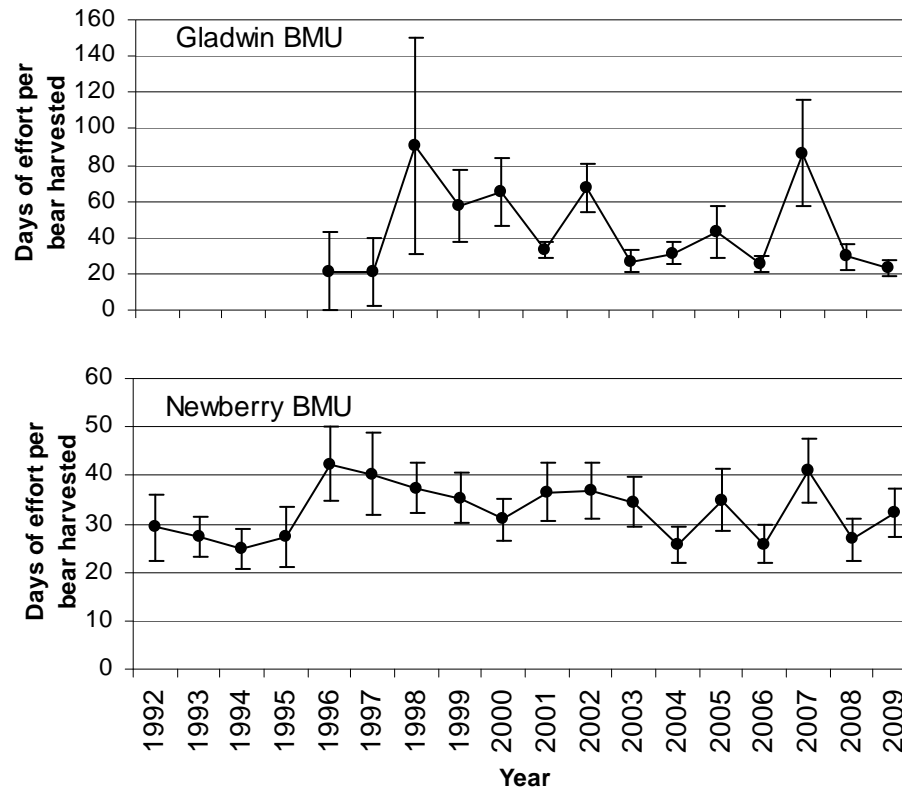
Figure 6 (continued). Estimated mean number of days required to harvest a bear in Michigan during 1992-2009, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.
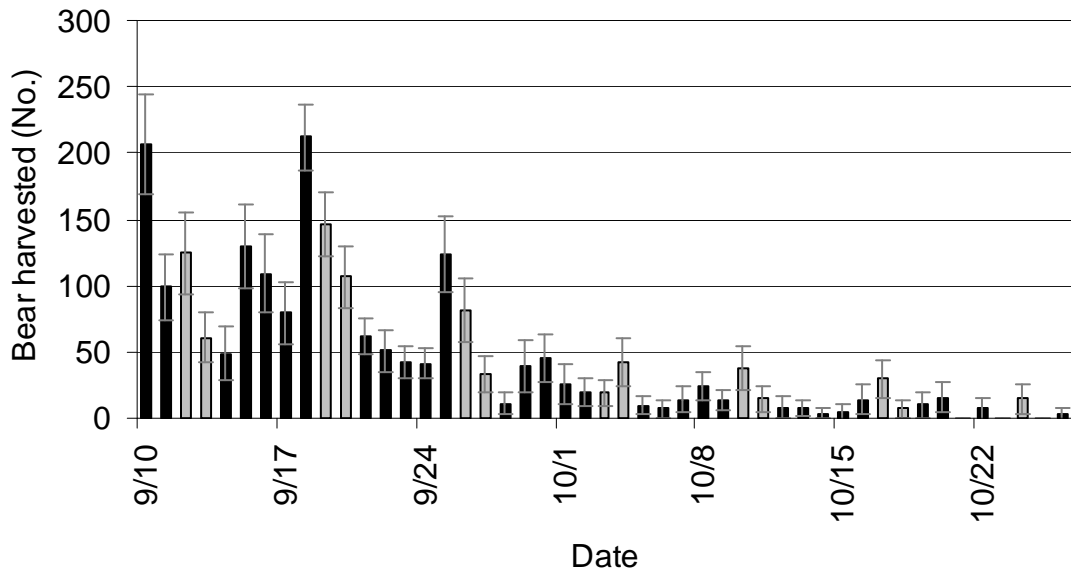
Figure 7. Estimated number of bear harvested by date during the 2009 bear hunting season (includes all hunt periods). An additional 6 $\pm$ 7 bear were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval. The opening of the bear hunting season was September 10 in the UP and September 18 in the LP. Hunting with dogs in the UP started on September 15.
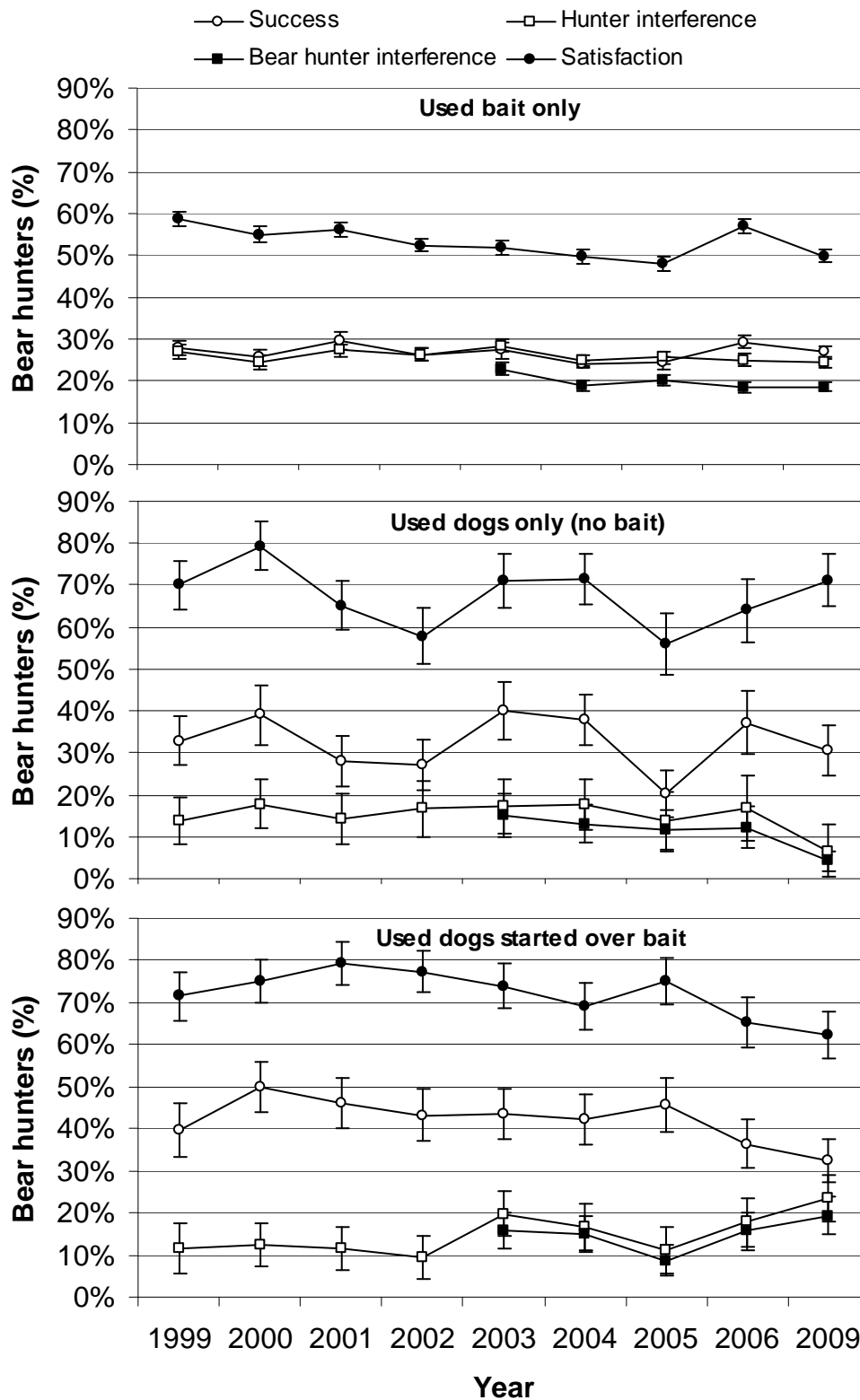
Figure 8. Estimated hunter success, interference, and satisfaction of bear hunters with their hunting experience in Michigan during 1999-2009, summarized by primary method of hunt. Vertical bars represent the 95% confidence interval. Interference was the proportion of hunters indicating they experienced interference from other hunters. Satisfaction was the proportion of hunters rating their hunting experience as very good or good.

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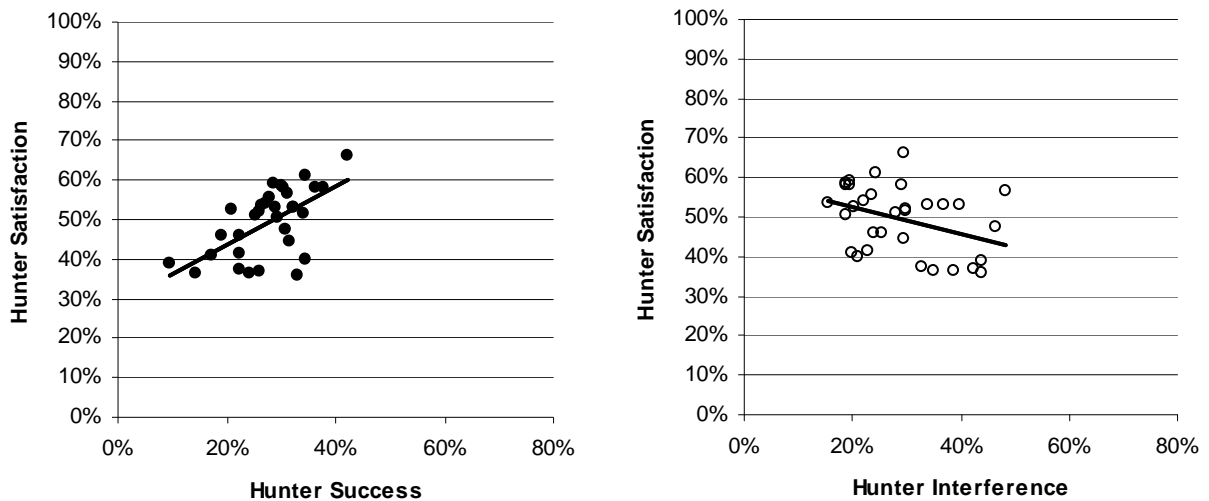
Figure 9. Hunter satisfaction (hunters rating their hunting experience as very good or good) relative to hunter success and hunter interference for 32 counties in Michigan during the 2009 bear hunting season (included only counties with at least 20 hunters). Interference was the proportion of hunters that reported interference from other hunters (all types of hunters).
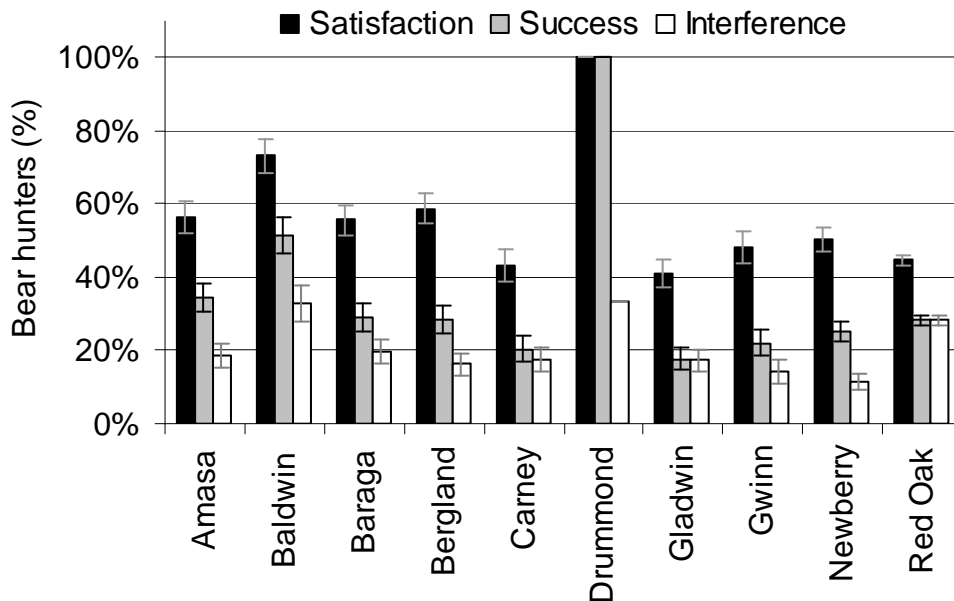
Figure 10. Estimated hunter satisfaction, hunting success, and level of hunter interference in Michigan's management units during the 2009 bear hunting season. Satisfaction measures the proportion of hunters rating their hunting experiences as very good or good. Error bars represent the 95% confidence limit. Interference was the proportion of hunters that reported interference from other hunters (all types of hunters).

Table 1. Number of people purchasing hunting licenses for the 2009 Michigan bear hunting seasons and number of people selected for survey sample.

Management unit	Licenses available (quota)	Number of eligible applicants[a]	Licenses sold[b]	Number of people included in mail survey sample[c]
Amasa	680	2,405	579	312
Baldwin	60	2,684	58	46
Baraga	2,340	4,401	1,705	490
Bergland	1,580	2,388	1,177	437
Carney	1,180	2,267	895	393
Drummond Island	3	227	3	2
Gladwin	150	909	120	114
Gwinn	1,470	3,277	1,117	429
Newberry	2,310	8,121	1,784	712
Red Oak	1,700	12,427	1,515	1364
Statewide	11,473	39,106	8,953	4,299
Applicants opting for Preference Point[d]		17,666		

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]Fewer licenses were sold than the number available because some successful applicants failed to purchase a license.
[c]An additional 713 hunters responded on the internet before the mail sample was selected; these internet responders were used in the calculating survey estimates.
[d]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 2009 Michigan bear hunting season.

Manage-ment Unit	Hunters		Harvest		Hunter success		Hunting effort		Days hunted per hunter ($\bar{x}$)		Days hunted per harvested bear ($\bar{x}$)	
	No.	95% CL[a]	No.	95% CL[a]	%	95% CL[a]	Days	95% CL[a]	Days	95% CL[a]	Days	95% CL[a]
Amasa	557	9	192	22	34	4	3,902	303	7.0	0.5	20.3	3.3
Baldwin	56	1	29	3	51	5	200	16	3.6	0.3	7.0	1.0
Baraga	1,566	38	456	59	29	4	12,335	1,024	7.9	0.6	26.8	5.5
Bergland	1,083	27	307	42	28	4	7,876	621	7.3	0.5	25.6	4.6
Carney	782	25	160	29	20	4	8,055	752	10.3	0.9	50.2	11.8
Drummond Is.	3	0	3	0	100	0	9	0	3.0	0.0	3.0	0.0
Gladwin	107	3	19	3	18	3	448	24	4.2	0.2	23.8	4.2
Gwinn	1,036	25	229	37	22	4	8,289	673	8.0	0.6	36.3	7.4
Newberry	1,636	31	413	46	25	3	12,731	793	7.8	0.5	30.8	4.5
Red Oak	1,430	9	403	17	28	1	7,050	146	4.9	0.1	17.5	0.9
Statewide[b]	8,256	67	2,210	102	27	1	60,894	1,787	7.4	0.2	27.3	1.9

[a]95% confidence limits.
[b]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 2009 Michigan bear hunting season.

County	Hunters[a] Total	Hunters[a] 95% CL	Harvest[a] Total	Harvest[a] 95% CL	Hunter success %	Hunter success 95% CL	Hunting effort (days)[a] Total	Hunting effort (days)[a] 95% CL	Hunter satisfaction[b] %	Hunter satisfaction[b] 95% CL	Interfered hunters[c] %	Interfered hunters[c] 95% CL
Alcona	222	14	70	8	32	3	1,047	76	44	3	30	3
Alger	260	42	66	22	25	7	1,867	416	51	8	28	8
Alpena	125	11	43	6	35	4	542	57	40	4	21	4
Antrim	17	4	4	2	22	10	80	21	50	12	43	12
Arenac	1	1	0	0	0	0	6	5	0	0	100	0
Baraga	755	68	226	44	30	5	5,490	825	59	6	19	5
Benzie	4	1	0	0	0	0	25	5	50	15	27	16
Charlevoix	14	4	4	2	28	12	64	18	62	13	9	8
Cheboygan	95	9	21	5	22	4	470	60	46	5	24	4
Chippewa	388	45	108	25	28	6	3,024	520	56	6	24	6
Clare	32	4	8	2	26	7	129	20	52	7	30	7
Crawford	40	6	13	4	32	8	192	35	53	8	40	8
Delta	380	48	79	22	21	5	3,206	559	53	7	20	6
Dickinson	326	42	63	19	19	5	3,096	567	46	7	25	6
Emmet	47	7	15	4	33	7	187	32	36	7	44	7
Gladwin	48	4	5	2	9	3	188	22	39	6	44	6
Gogebic	508	48	154	32	30	6	3,950	596	58	6	20	5

[a]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.
[b]Proportion of hunters that rated their hunting experience as very good or good.
[c]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 2009 Michigan bear hunting season.

County	Hunters[a]		Harvest[a]		Hunter success		Hunting effort (days)[a]		Hunter satisfaction[b]		Interfered hunters[c]	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	%	95% CL
Gd. Traverse	2	1	2	1	100	0	12	7	100	0	0	0
Houghton	326	53	86	28	26	8	2,608	549	54	9	16	6
Iosco	24	5	6	3	26	9	118	31	37	10	42	10
Iron	351	23	132	19	38	5	2,414	275	58	5	19	4
Isabella	0	0	0	0	0	0	0	0	0	0	0	0
Kalkaska	71	8	10	3	14	4	372	50	36	5	35	6
Keweenaw	142	37	52	23	36	13	1,100	441	58	13	29	12
Lake	27	3	12	2	42	7	78	13	66	7	29	7
Leelanau	0	0	0	0	0	0	0	0	0	0	0	0
Luce	455	48	123	28	27	5	3,477	544	54	6	22	5
Mackinac	228	37	51	18	22	7	1,677	372	37	8	33	8
Manistee	9	2	6	2	62	11	24	6	87	9	40	12
Marquette	780	68	230	41	30	5	5,773	732	51	5	19	4
Mason	0	0	0	0	0	0	0	0	0	0	0	0
Mecosta	4	2	0	0	0	0	15	7	67	21	33	21
Menominee	487	37	85	22	17	4	4,789	570	41	6	20	5
Midland	0	0	0	0	0	0	0	0	0	0	0	0

[a]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.
[b]Proportion of hunters that rated their hunting experience as very good or good.
[c]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 2009 Michigan bear hunting season.

County	Hunters[a]		Harvest[a]		Hunter success		Hunting effort (days)[a]		Hunter satisfaction[b]		Interfered hunters[c]	
	Total	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	%	95% CL
Missaukee	95	10	23	5	24	4	449	56	36	5	39	5
Montmorency	187	13	54	7	29	3	929	79	53	4	34	4
Muskegon	0	0	0	0	0	0	0	0	0	0	0	0
Newaygo	4	2	4	2	100	0	6	3	100	0	0	0
Oceana	0	0	0	0	0	0	0	0	0	0	0	0
Ogemaw	44	6	14	4	31	7	161	24	57	7	48	7
Ontonagon	638	63	220	41	34	6	4,344	657	61	6	24	5
Osceola	19	3	4	2	19	8	89	17	38	9	32	9
Oscoda	130	11	40	6	31	4	695	70	47	4	46	4
Otsego	49	6	17	4	34	6	227	37	51	7	30	6
Presque Isle	131	11	29	5	22	4	677	70	42	4	23	4
Roscommon	126	11	41	6	32	4	654	71	53	4	37	4
Schoolcraft	291	40	83	23	28	7	2,091	394	59	7	19	6
Wexford	17	3	7	2	40	9	67	14	79	9	42	10
Unreported	777	69	3	5	0	1	4,482	589	38	5	22	4

[a]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.

[b]Proportion of hunters that rated their hunting experience as very good or good.

[c]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 2009 bear hunting season.

Management unit	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	205	22	37	4	232	23	42	4	118	19	21	3	2	3	0	1
Baldwin	22	3	39	5	23	3	41	5	10	2	17	3	1	1	2	2
Baraga	450	59	29	4	744	67	47	4	361	55	23	3	12	12	1	1
Bergland	303	43	28	4	528	48	49	4	235	39	22	4	16	12	1	1
Carney	403	37	52	4	217	32	28	4	154	28	20	4	8	7	1	1
Drummond Is.	0	0	0	0	0	0	0	0	3	0	100	0	0	0	0	0
Gladwin	53	5	50	4	42	4	39	4	11	3	10	2	1	1	1	1
Gwinn	405	45	39	4	419	46	40	4	203	36	20	3	10	9	1	1
Newberry	517	49	32	3	778	55	48	3	315	42	19	3	26	14	2	1
Red Oak	710	19	50	1	497	18	35	1	143	11	10	1	80	9	6	1
Statewide	3,067	110	37	1	3,480	118	42	1	1,552	95	19	1	157	26	2	0

Table 5. Estimated number of days of hunting effort on private and public lands during the 2009 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	1,491	231	1,501	253	886	209	23	33
Baldwin	81	14	74	13	37	8	8	6
Baraga	3,622	688	5,575	832	3,105	668	32	40
Bergland	2,085	445	3,426	456	2,219	492	146	142
Carney	3,902	536	2,262	604	1,863	456	27	43
Drummond Is.	0	0	0	0	9	0	0	0
Gladwin	228	25	174	21	38	12	7	6
Gwinn	3,372	553	3,102	499	1,787	443	29	33
Newberry	3,851	554	5,888	637	2,715	506	277	225
Red Oak	3,572	128	2,753	128	682	74	44	18
Statewide[a]	22,205	1,281	24,755	1,414	13,340	1,182	594	277

[a]Column totals may not equal statewide totals because of rounding errors.

Table 6. Number of applicants, licenses sold, estimated number of hunters, harvest, hunting effort (days), and hunting success during Michigan bear hunting seasons, 2003-2009.

Region	Year						
	2003	2004	2005	2006	2007	2008	2009
Upper Peninsula							
Applicants	27,344	28,295	28,600	26,554	24,712	23,206	23,086
Licenses sold	7,453	7,558	7,808	7,786	7,774	8,195	7,260
Hunters	6,939	7,062	7,305	7,310	7,221	7,625	6,664
Harvest	2,026	1,834	1,908	2,176	1,817	1,948	1,759
Males (%)	62	63	63	63	62	59	62
Females (%)	38	36	36	36	36	40	38
Unknown (%)	1	1	1	1	2	1	1
Hunter-days	54,333	52,158	53,729	53,113	55,025	56,531	53,197
Hunter success (%)	29	26	26	30	25	26	26
Lower Peninsula							
Applicants	14,297	15,616	15,625	14,634	14,370	15,386	16,020
Licenses sold	1,761	1,737	1,654	1,670	1,740	1,983	1,693
Hunters	1,695	1,653	1,567	1,608	1,653	1,888	1,592
Harvest	439	388	303	463	365	528	451
Males (%)	52	61	58	60	56	58	54
Females (%)	47	38	39	38	43	40	46
Unknown (%)	1	1	3	2	1	1	0
Hunter-days	8,592	8,451	8,250	7,589	8,838	8,984	7,697
Hunter success (%)	26	23	19	29	22	28	28
Statewide							
Applicants[a]	50,908	54,831	57,040	55,050	54,014	55,458	56,772
Licenses sold	9,214	9,295	9,462	9,456	9,514	10,178	8,953
Hunters	8,634	8,714	8,872	8,918	8,874	9,512	8,256
Harvest	2,465	2,221	2,210	2,639	2,181	2,476	2,210
Males (%)	60	62	63	63	61	59	60
Females (%)	39	36	36	36	37	40	40
Unknown (%)	1	1	1	1	2	1	0
Hunter-days	62,925	60,609	61,979	60,702	63,862	65,516	60,894
Hunter success (%)	29	25	25	30	25	26	27

[a]Number of applicants statewide also included people that applied for a preference point.

Table 8. Estimated proportion of hunters that used firearms, crossbows, and archery equipment while hunting bears in Michigan, 2009.

| | Hunting equipment | | | | | | | |
| | Firearms | | Compound, recurve, or long bows | | Crossbows | | Unknown | |
Management unit	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	84	3	19	3	3	2	0	0
Baldwin	73	4	33	5	2	<1	2	2
Baraga	85	3	20	3	4	2	<1	<1
Bergland	85	3	16	3	5	2	<1	<1
Carney	88	3	17	3	4	2	<1	1
Drummond Is.	67	0	33	0	0	0	0	0
Gladwin	86	3	17	3	1	1	0	0
Gwinn	89	3	14	3	4	2	<1	1
Newberry	89	2	12	2	3	1	<1	<1
Red Oak	86	1	28	1	6	1	<1	<1
Statewide[a]	87	1	18	1	4	1	<1	<1

[a]Row totals equal more than 100% because hunters could use more than one type of equipment during season.

Table 9. Estimated number of hunters that used firearms, crossbows, and archery equipment while hunting bears in Michigan, 2009.

| | Hunting equipment | | | | | | | |
| | Firearms | | Compound, recurve, or long bows | | Crossbows | | Unknown | |
Management unit	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL
Amasa	466	18	104	18	19	9	0	0
Baldwin	41	3	18	3	1	0	1	1
Baraga	1,339	56	307	52	60	25	4	7
Bergland	924	40	175	35	58	21	3	5
Carney	686	32	136	27	28	13	3	4
Drummond Is.	2	0	1	0	0	0	0	0
Gladwin	92	4	19	3	1	1	0	0
Gwinn	923	36	147	31	37	17	3	5
Newberry	1,452	43	190	34	52	19	6	7
Red Oak	1,229	15	403	17	87	9	3	2
Statewide[a]	7,154	98	1,501	86	343	45	23	13

[a]Row totals equal more than the estimated number of hunters in the unit because hunters could use more than one type of equipment during season.

Table 10. Estimated proportion of bears harvested by firearms, crossbows, and archery equipment during the 2009 bear hunting season in Michigan.

	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
Management unit	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	85	5	12	4	2	2	0	0
Baldwin	64	7	36	7	0	0	0	0
Baraga	84	6	16	6	0	0	0	0
Bergland	81	6	13	6	5	3	1	2
Carney	87	7	10	6	2	3	2	3
Drummond Is.	67	0	33	0	0	0	0	0
Gladwin	81	8	19	8	0	0	0	0
Gwinn	88	6	9	5	1	2	1	2
Newberry	86	4	13	4	2	2	0	0
Red Oak	86	2	10	2	3	1	<1	<1
Statewide[a]	85	2	13	2	2	1	<1	<1

Table 11. Estimated number of bears harvested during the 2009 bear hunting season in Michigan, summarized by hunting equipment used to take the bear.

	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
Management unit	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL
Amasa	164	21	24	8	4	4	0	0
Baldwin	18	3	10	2	0	0	0	0
Baraga	383	56	73	28	0	0	0	0
Bergland	248	39	40	18	15	11	3	5
Carney	139	27	16	10	3	4	3	4
Drummond Is.	2	0	1	0	0	0	0	0
Gladwin	15	3	4	2	0	0	0	0
Gwinn	201	35	21	13	3	5	3	5
Newberry	354	43	53	18	7	7	0	0
Red Oak	348	16	41	6	13	4	1	1
Statewide[a]	1,873	96	282	42	45	15	10	9

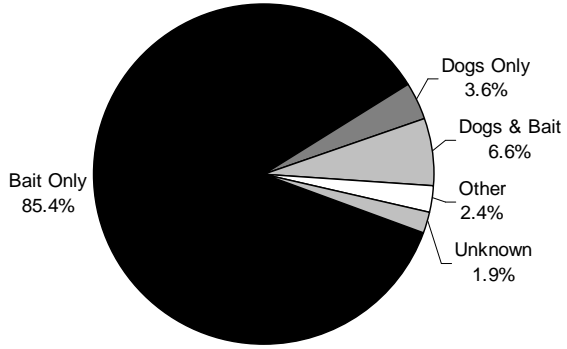Table 12. Primary hunting methods used to hunt bear in Michigan, 2009.

Method	Number of hunters	95% CL	Method used (%)
Bait only	7,046	101	
Dogs only	307	42	
Dogs and bait	543	61	
Other	197	36	
Unknown	162	35	

Dogs Only 3.6%
Dogs & Bait 6.6%
Other 2.4%
Unknown 1.9%
Bait Only 85.4%

Table 13. Hunting methods used to harvest bear in Michigan, 2009.
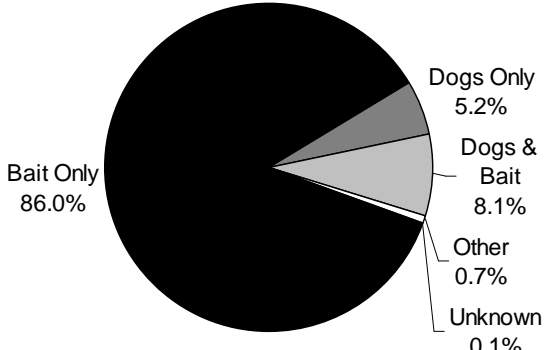
Method	Number of hunters	95% CL	Method used (%)
Bait only	1,895	97	
Dogs only	116	24	
Dogs and bait	180	34	
Other	15	9	
Unknown	3	4	

Dogs Only 5.2%
Dogs & Bait 8.1%
Other 0.7%
Unknown 0.1%
Bait Only 86.0%

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Table 14. Hunters' level of satisfaction with the number of bear seen during the 2009 bear hunting season.

| | Satisfaction level | | | | | | | |
| Management unit | Very good or good | | Neutral | | Poor or very poor | | No answer or not applicable | |
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	31	4	20	3	36	4	13	3
Baldwin	59	5	10	3	25	5	6	2
Baraga	34	4	17	3	39	4	11	3
Bergland	36	4	14	3	36	4	14	3
Carney	24	4	14	3	46	4	16	3
Drummond Is.	67	0	33	0	0	0	0	0
Gladwin	20	3	12	3	47	4	21	3
Gwinn	28	4	11	3	48	4	13	3
Newberry	30	3	12	2	45	3	13	2
Red Oak	27	1	14	1	45	1	14	1
Statewide	30	1	14	1	42	1	13	1

Table 15. Hunters' level of satisfaction with the number of opportunities to take a bear during the 2009 bear hunting season.

| | Satisfaction level | | | | | | | |
| Management unit | Very good or good | | Neutral | | Poor or very poor | | No answer or not applicable | |
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	30	4	17	3	36	4	17	3
Baldwin	46	5	18	4	25	4	10	3
Baraga	31	4	14	3	40	4	15	3
Bergland	29	4	12	3	40	4	19	3
Carney	19	4	15	3	42	4	24	4
Drummond Is.	67	0	33	0	0	0	0	0
Gladwin	21	3	6	2	45	4	29	4
Gwinn	22	4	12	3	47	4	20	3
Newberry	27	3	11	2	41	3	20	3
Red Oak	22	1	12	1	46	1	19	1
Statewide	26	1	13	1	42	1	19	1

Table 16. Hunters' level of satisfaction with overall bear hunting experience during the 2009 bear hunting season.

| | Satisfaction level | | | | | | | |
| Management unit | Very good or good | | Neutral | | Poor or very poor | | No answer or not applicable | |
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	56	4	16	3	23	4	5	2
Baldwin	73	5	6	2	21	4	0	0
Baraga	56	4	17	3	23	3	4	2
Bergland	59	4	15	3	23	4	4	2
Carney	43	4	17	3	33	4	7	2
Drummond Is.	100	0	0	0	0	0	0	0
Gladwin	41	4	12	3	36	4	11	3
Gwinn	48	4	15	3	31	4	6	2
Newberry	50	3	16	2	27	3	6	2
Red Oak	45	1	16	1	34	1	5	1
Statewide	51	1	16	1	28	1	5	1

Table 17. Number and proportion of hunters that experienced interference with another hunter during the 2009 bear hunting season.

| Management unit | Hunters interfered by other hunters (all types of hunters) | | | | Hunters interfered by other bear hunters | | | |
	%	95% CL	No.	95% CL	%	95% CL	No.	95% CL
Amasa	17	3	95	18	11	3	59	15
Baldwin	29	5	16	3	17	4	9	2
Baraga	20	3	317	53	17	3	271	50
Bergland	20	3	218	38	17	3	185	35
Carney	19	4	145	28	12	3	93	23
Drummond Is.	33	0	1	0	33	0	1	0
Gladwin	40	4	42	4	21	3	23	4
Gwinn	21	4	219	37	14	3	140	31
Newberry	25	3	417	47	21	3	347	44
Red Oak	33	1	467	18	25	1	361	17
Statewide	23	1	1,937	96	18	1	1,488	87

Appendix A

2009 Michigan Bear Harvest Questionnaire

MICHIGAN DEPARTMENT OF NATURAL RESOURCES – WILDLIFE
PO BOX 30030 LANSING MI 48909-7530

2009 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. If you want to provide your answers via the internet,*
> *visit our website at https://secure1.state.mi.us/wildlifesurveys/bear.aspx.*

1. Did you hunt bear in Michigan during the 2009 season?

   1 ☐ Yes   2 ☐ No; (If you select "No", you are finished. Please return the survey.)

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

COUNTY HUNTED (*List each county that you hunted for bear; for example, Marquette County*)	NUMBER OF DAYS HUNTED	TYPE OF LAND
		1 ☐ Private 2 ☐ Public 3 ☐ Both
		1 ☐ Private 2 ☐ Public 3 ☐ Both
		1 ☐ Private 2 ☐ Public 3 ☐ Both
		1 ☐ Private 2 ☐ Public 3 ☐ Both
		1 ☐ Private 2 ☐ Public 3 ☐ Both

3. Did you hunt with a firearm, crossbow, or bow during the 2009 bear season?
(select all that apply)

   1 ☐ Firearm   2 ☐ Crossbow   3 ☐ Bow (recurve, compound, or long bow)

4. What hunting method did you use most often when hunting bear in Michigan during the 2009 bear season? (P*lease select only one item.*)

   1 ☐ Hunted over bait only   2 ☐ Used dogs only (bait not used)

   3 ☐ Used dogs started over bait   4 ☐ Used other methods not involving dogs or bait

Please continue on back

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5. If you used bait to attract bears, what was the total number of gallons you used during the legal baiting and hunting periods? _____

                                                    Please write in gallons used.

6. Did you kill a bear and place your harvest tag on it? *(If no, please skip to question 8.)*

    ¹ ☐ Yes   ² ☐ No

7. 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 2009						
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 2009						
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?

      ¹ ☐ Male   ² ☐ Female   ³ ☐ Not sure

    c. In what county was it harvested? _____
                                                 please write in county name

    d. On what type of land was the bear harvested?

      ¹ ☐ Private   ² ☐ Public

    e. What weapon was used to harvest bear?

      ¹ ☐ Firearm   ² ☐ Crossbow   ³ ☐ Bow (recurve, compound, or long bow)

    f. What was the method of harvest?

      ¹ ☐ Taken over bait   ² ☐ Used dogs only (bait not used)

      ³ ☐ Used dogs started over bait   ⁴ ☐ Used other methods not involving dogs or bait

8. Did other hunters interfere with your bear hunting?   ¹ ☐ Yes   ² ☐ No *(Skip to question 10.)*

9. If you answered "yes" to the previous question, was the interference caused by other bear hunters?   ¹ ☐ Yes   ² ☐ No

10. How would you rate the following for your **2009 bear hunting season:**
(Select one choice per item.)

	Very Good	Good	Neutral	Poor	Very Poor	Not Applicable
a. Number of bear you saw.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
b. Number of opportunities you had to take a bear.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐
c. Your overall bear hunting experience.	1 ☐	2 ☐	3 ☐	4 ☐	5 ☐	6 ☐

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