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2012 MICHIGAN BLACK BEAR HUNTER SURVEY

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ABSTRACT

A random sample of bear hunters was contacted after the 2012 hunting season to determine hunter participation, hunting methods, bear harvest, and hunter satisfaction. In 2012, an estimated 5,644 hunters spent nearly 39,743 days afield and harvested about 1,691 bears. The number of bear hunting licenses available in 2012 was reduced 32% from previous years because of concerns of a declining bear population. The number of licenses sold in 2012 declined 31% from 2011, and the number of bear harvested decreased 23%. Statewide, 30% of hunters harvested a bear in 2012, versus 28% success in 2011. The average number of days required to harvest a bear statewide was 23.6 days in 2012, compared to 25.3 days in 2011. 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 55% of hunters rated their hunting experience as very good or good in 2012 (versus 53% in 2011).

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



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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 2012, 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 14-29 in Benzie, Leelanau, and Grand Traverse counties and during September 21-29 for remaining counties in the Northern Lower Peninsula (LP) units. The first day of hunt periods in the LP (September 21) was restricted to hunting with bait only, and the last two days of the hunt periods in the LP (September 28-29) were restricted to hunters using dogs. The Red Oak Management Unit in the LP also had an archery-only hunt during October 5-11 (firearms and crossbows prohibited).

The number of bear hunting licenses available in 2012 (license quota) was reduced 32 percent from previous years because of concerns of a declining bear population. Only 7,994 licenses were available to bear hunters in 2012, compared to 11,745 in both 2011 and 2010. The license quota in 2012 was 6,976 licenses for the UP, a decrease of 3,381 from 2011, and 1,015 licenses for the northern LP, a decrease of 370 from last year.

Hunters had to be at least 10 years old to purchase a hunting license. 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 a firearm, crossbow, or archery equipment, except for the special archery-only hunt in the Red Oak Management Unit. Youth 10 to 13 years old could hunt with a firearm on private land only. Youth 14 years old and older could hunt with a firearm on private or public land. Hunters using a crossbow were required to obtain a free crossbow stamp, except hunters with a disability already hunting under a DNR-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, the first day of the Red Oak, Baldwin, and Gladwin units (September 21), the first day of the Baldwin North Area (September 14), and during the archery-only season in the Red Oak Management Unit).

The Pure Michigan Hunt (PMH) was a unique multi-species hunting opportunity offered for the first time in 2010. Individuals could purchase an unlimited number of applications for the PMH. Three individuals were randomly chosen from all applications, and winners received elk, bear, spring turkey, fall turkey, and antlerless deer hunting licenses and could participate in a reserved waterfowl hunt on a managed waterfowl area. The bear hunting licenses were valid for all areas open for hunting bear, except Drummond Island, and during all bear hunting periods. Furthermore, the PMH license holder could hunt any bear season until their bear harvest tag was filled.

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

The DNR provided all bear hunters the option to report information about their bear hunting activity voluntarily via the internet. This option was advertised on the DNR website and an email message was sent to all license buyers that had provided an email address to the DNR. 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 2012 bear hunting season, a questionnaire (Appendix A) was mailed to 3,486 randomly selected people (Table 1) that had purchased a bear hunting license (resident, senior, nonresident bear licenses, comprehensive lifetime bear license, and Pure Michigan Hunt) 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 12 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (10 management units). Hunters who purchased a license that could be used in multiple management units (PMH license holders) were treated as separate stratum (stratum 11). In addition, hunters that had voluntarily reported information about their hunting activity via the internet were treated as a separate stratum (stratum 12). 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 late November 2012, and up to one follow-up questionnaire was mailed to nonrespondents. Although 3,486 people were sent the questionnaire, 35 surveys were undeliverable, resulting in an adjusted sample size of 3,451. Questionnaires were returned by 2,410 people, yielding a 70% adjusted response rate. In addition, 447 people voluntarily reported information about their hunting activity via the internet before the random sample was selected.

RESULTS

In 2012, 6,226 bear hunting licenses were purchased (Table 1), which was a 31% decline from 2011 (9,021). Most of the people buying a license in 2012 were men (90%), and the average age of the license buyers was 48 years (Figure 2). About 5% of the license buyers (288) were younger than 17 years old.

Compared to 10 years ago, the number of people buying a bear hunting license in 2012 decreased 32% (9,104 people purchased a license in 2002). Although the overall number of license buyers decreased, there were increased hunter numbers among the youngest and oldest age classes in 2012 (Figure 3). The increased hunter numbers in the oldest age classes likely represented the rising share of older people in the population as the baby-boom generation aged and life expectancies have increased. The increased participation among the youngest hunters likely reflected the lowering of the minimum age requirements. In 2012, hunters had to be at least 10 years old to participate; while the hunters had to be at least 12 years old to participate in 2002.

Nearly $91 \pm 1\%$ of the license buyers hunted bear (Table 2). These hunters spent 39,743 days afield ($\bar{x} = 7.0$ days/hunter) and harvested 1,691 bears. Harvest decreased by 23% from 2011 (Figure 4). Marquette, Baraga, Ontonagon, and Luce counties had the highest number of bear hunters and bears harvested during 2012 (Table 3).

The average number of days required to harvest a bear statewide was 23.6 days in 2012 (Table 2, Figure 5), which was not significantly different from 2011 (25.3 days). Mean effort per harvested bear also did not change significantly in any region between 2011 and 2012 (Figure 6). 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, Gladwin, and Newberry management units, while Baldwin and Drummond Island management units have had the lowest effort per harvested bear (Figure 7).

About 38% of the bear hunters hunted on private lands only in 2012, 43% hunted on public lands only, and 17% hunted on both private and public lands (Table 4). Bear hunters spent

14,549 days afield on private land, 16,636 days hunting on public land only, and 8,343 days hunting on both private and public lands (Table 5). Of the estimated 1,691 bear harvested in 2012, $41 \pm 3\%$ of these bears (693 ± 55) were taken on private land. About $59 \pm 3\%$ of the bears (998 ± 68) were taken on public land.

For bears that the harvest date was reported, about 26% of these bears were taken during the first five days and 41% during the first ten days of the hunting season (Figure 8). Of the bears harvested, $57 \pm 3\%$ were males (965 ± 67) and $43 \pm 3\%$ were females (722 ± 56 ; Table 6). Statewide, 30% of hunters harvested a bear in 2012, compared to 28% success in 2011 (Table 2). Hunter success ranged from 23-100% among the bear management units (Table 2).

Most hunters (87%) used firearms while hunting bear, although 15% of the hunters used archery equipment (compound, recurve, or long bows), and 7% used a crossbow (Tables 7 and 8). Most hunters (88%) used a firearm to harvest their bear, while 9% used archery equipment, and 3% used a crossbow (Tables 9 and 10). Hunters using a crossbow to hunt bear were required to obtain a crossbow stamp, unless they were a disabled hunter that already had a DNR-issued crossbow permit. About $71 \pm 6\%$ of the bear hunters using a crossbow in 2012 had obtained the crossbow stamp in 2012, and about $83 \pm 5\%$ of the bear hunters using a crossbow in 2012 had obtained the crossbow stamp in 2009, 2010, 2011, or 2012.

Most hunters ($85 \pm 1\%$) relied primarily on baiting as a means of locating and attracting bears (Table 11). About 12% ($\pm 1\%$) 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 $79 \pm 2\%$ of the harvested bears were taken with the aid of bait only (Table 12). Hunting success for hunters using bait only was $28 \pm 2\%$, while hunting success for hunters using dogs was $47 \pm 5\%$ in 2012. Success among hunters using dogs has usually been higher than among hunters using bait only (Figure 9).

About 34% of bear hunters statewide rated the number of bear seen during the 2012 hunting season as very good or good, and 41% rated bear seen as poor or very poor (Table 13). Similarly, about 31% of hunters statewide rated the number of chances they had to take a bear during the 2012 hunting season as very good or good, and 41% rated their chances as poor or very poor (Table 14).

Statewide, about 55% of hunters rated their hunting experiences as very good or good (versus 53% in 2011), and 25% rated their hunting experiences as poor or very poor (Table 15). Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Figure 10). In 2012, 21% of the hunters were interfered with by other hunters (Table 16). Most of this interference was caused by another bear hunter; 16% 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 16, Figure 11).

Only $11 \pm 1\%$ of the hunters (611 ± 56 hunters) hired a hunting guide in 2012 (Table 17). In contrast, $12 \pm 1\%$ of the hunters hired a hunting guide in 2000 (Frawley 2001). Most hunting guides ($78 \pm 4\%$) relied on baiting to locate bears for their clients in 2012 (Table 18).

ACKNOWLEDGEMENTS

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Figure 1. Bear management units open to hunting in Michigan, 2012.

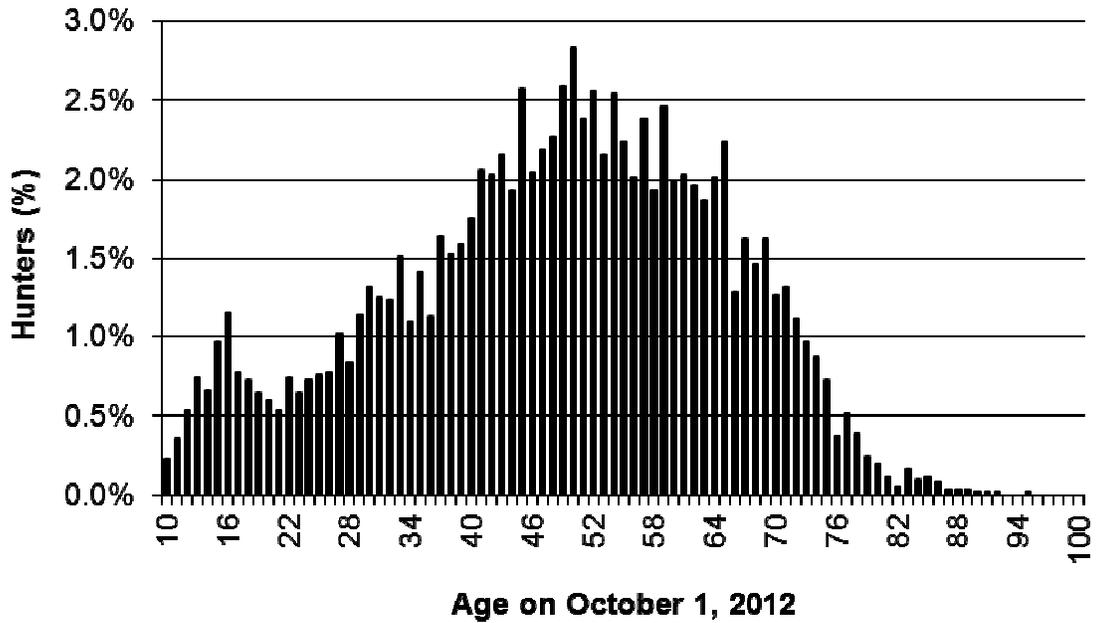


Figure 2. Age of people that purchased a bear hunting license in Michigan for the 2012 hunting season ($\bar{x} = 48$ years). Licenses were purchased by 6,226 people.

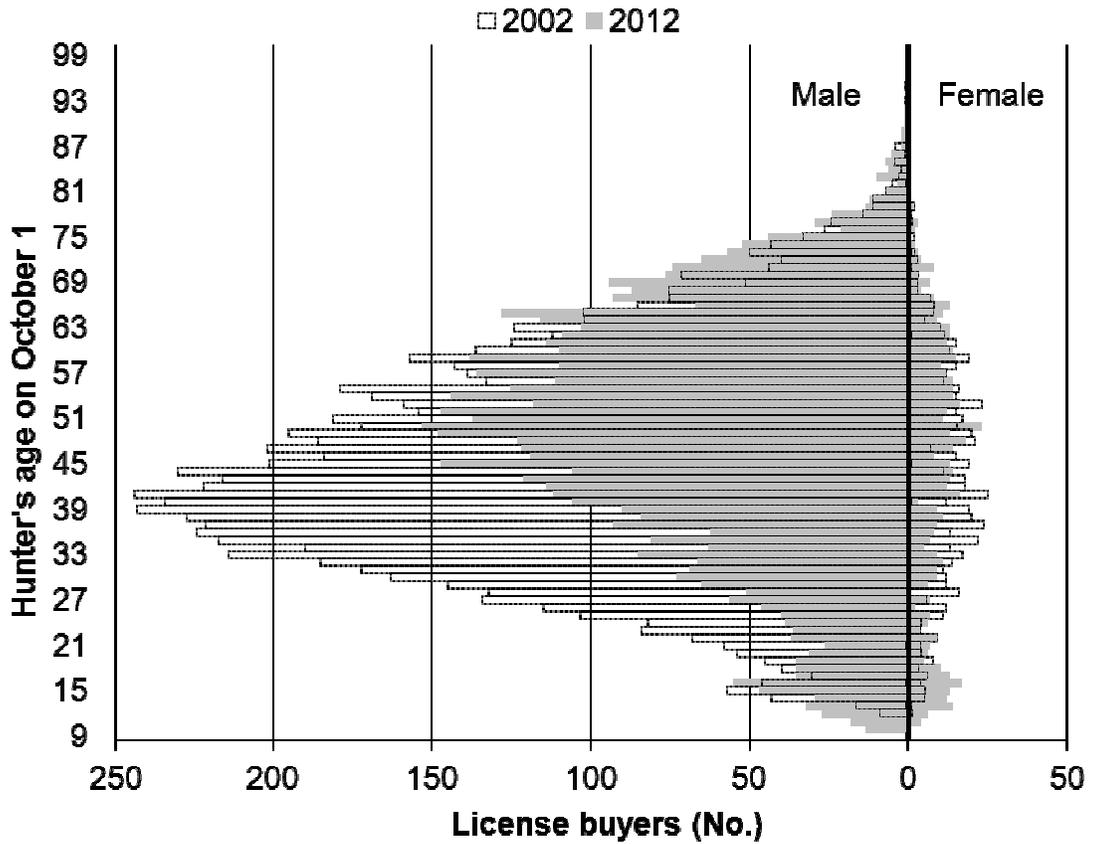


Figure 3. Number of bear hunting license buyers in Michigan by age and sex during 2001 and 2012 hunting seasons. The number of people buying a license was 9,104 in 2002 and 6,226 in 2012.

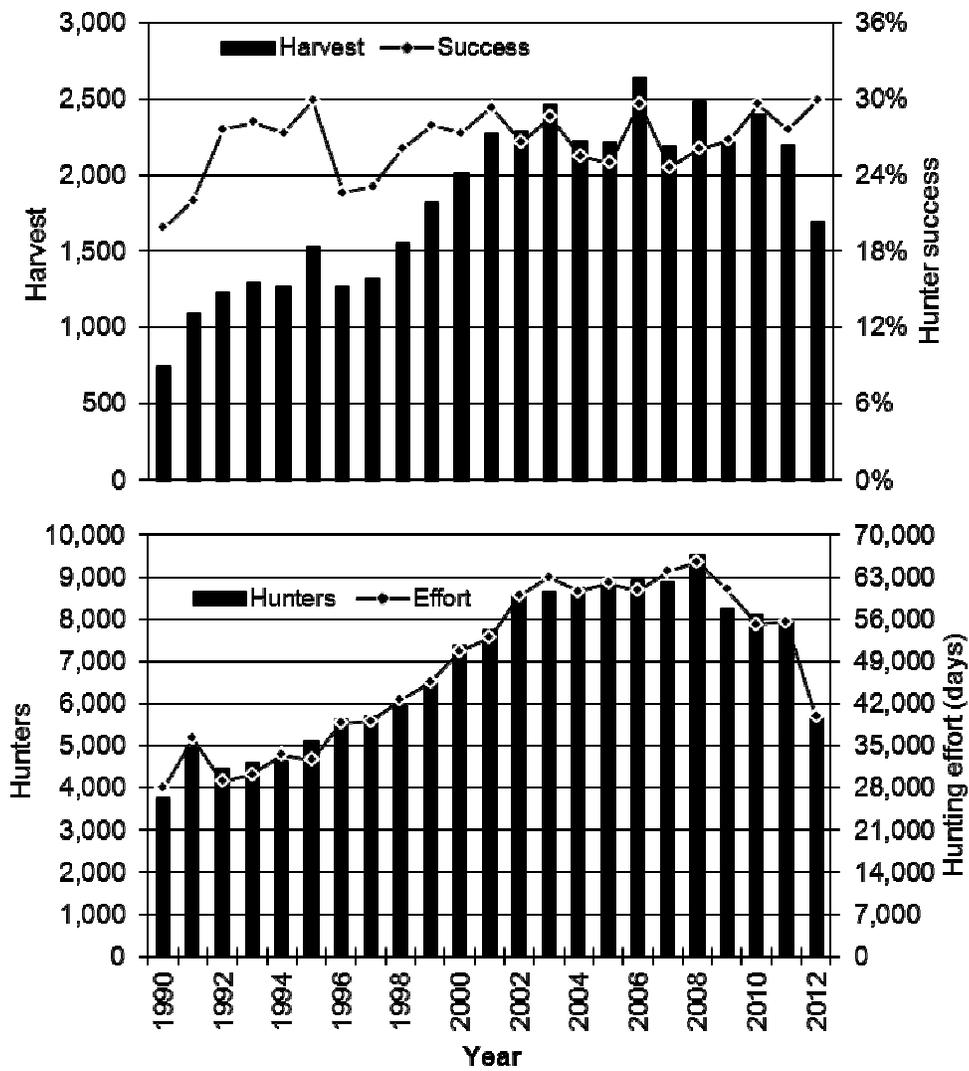


Figure 4. Estimated harvest, hunting success, number of hunters, and hunting effort during bear hunting seasons, 1990-2012.

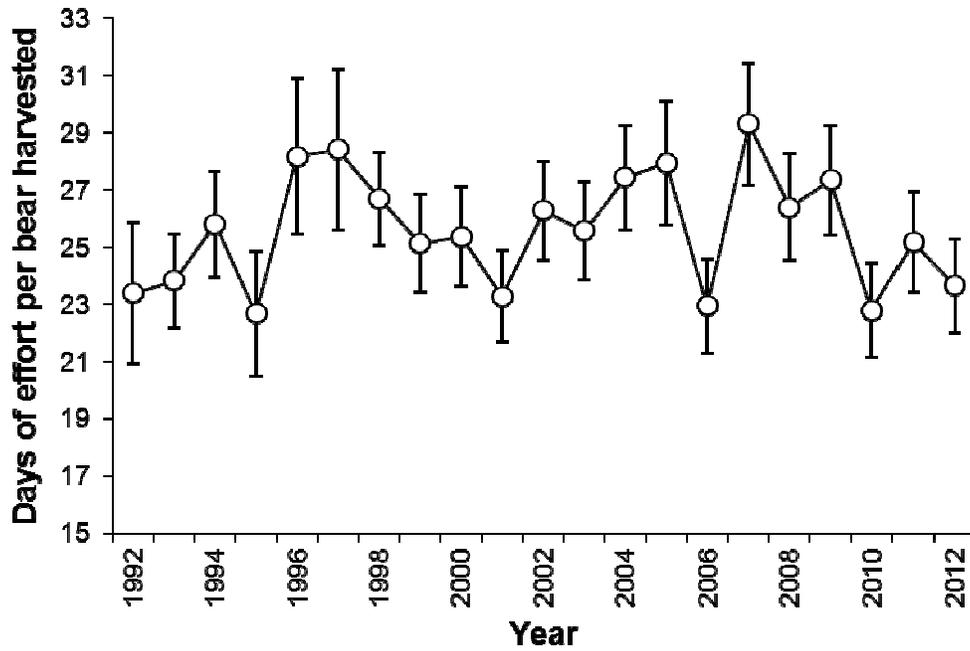


Figure 5. Estimated mean number of days required to harvest a bear statewide in Michigan during 1992-2012. Vertical bars represent the 95% confidence interval.

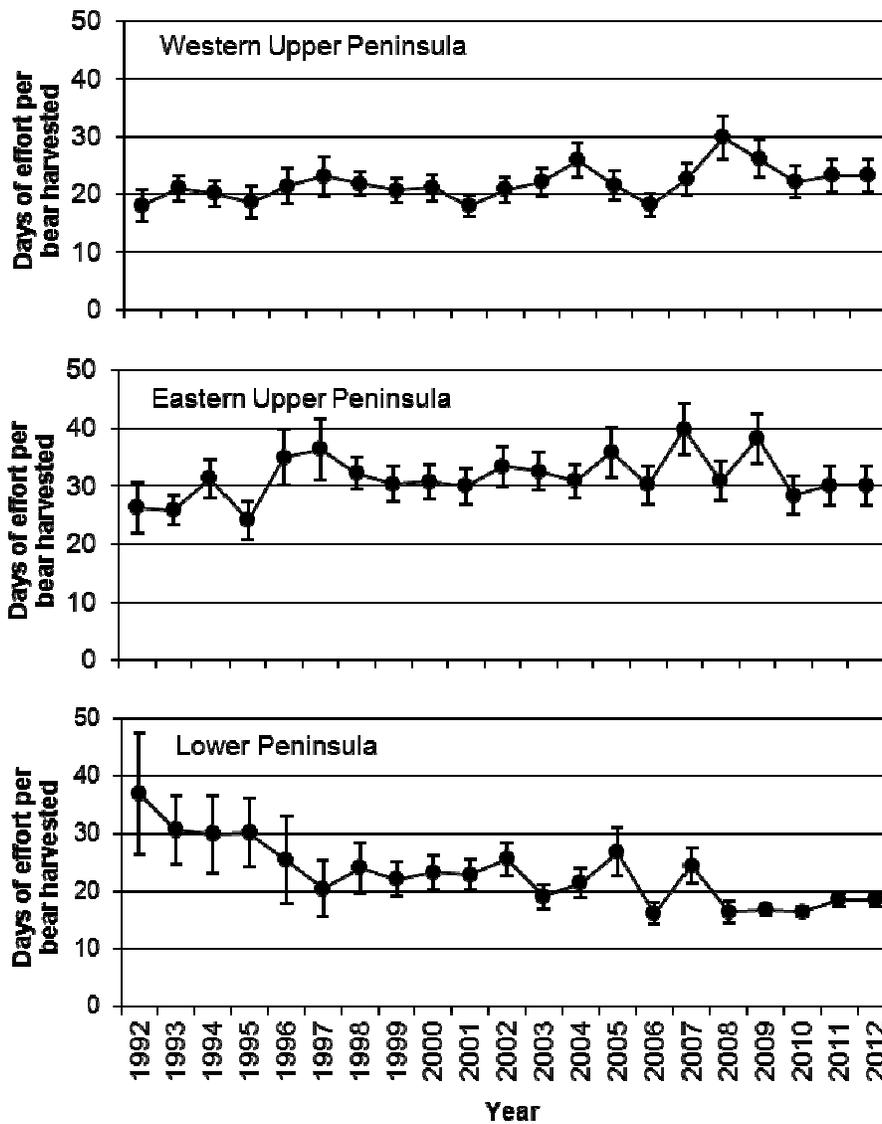


Figure 6. Estimated mean number of days required to harvest a bear in Michigan during 1992-2012, summarized by ecological region. Western UP consisted of Amasa, Baraga, and Bergland units, and Eastern UP consisted of Carney, Gwinn, and Newberry units (Drummond Island Management Unit excluded). Lower Peninsula consisted of Baldwin, Gladwin, and Red Oak management units. Vertical bars represent the 95% confidence interval.

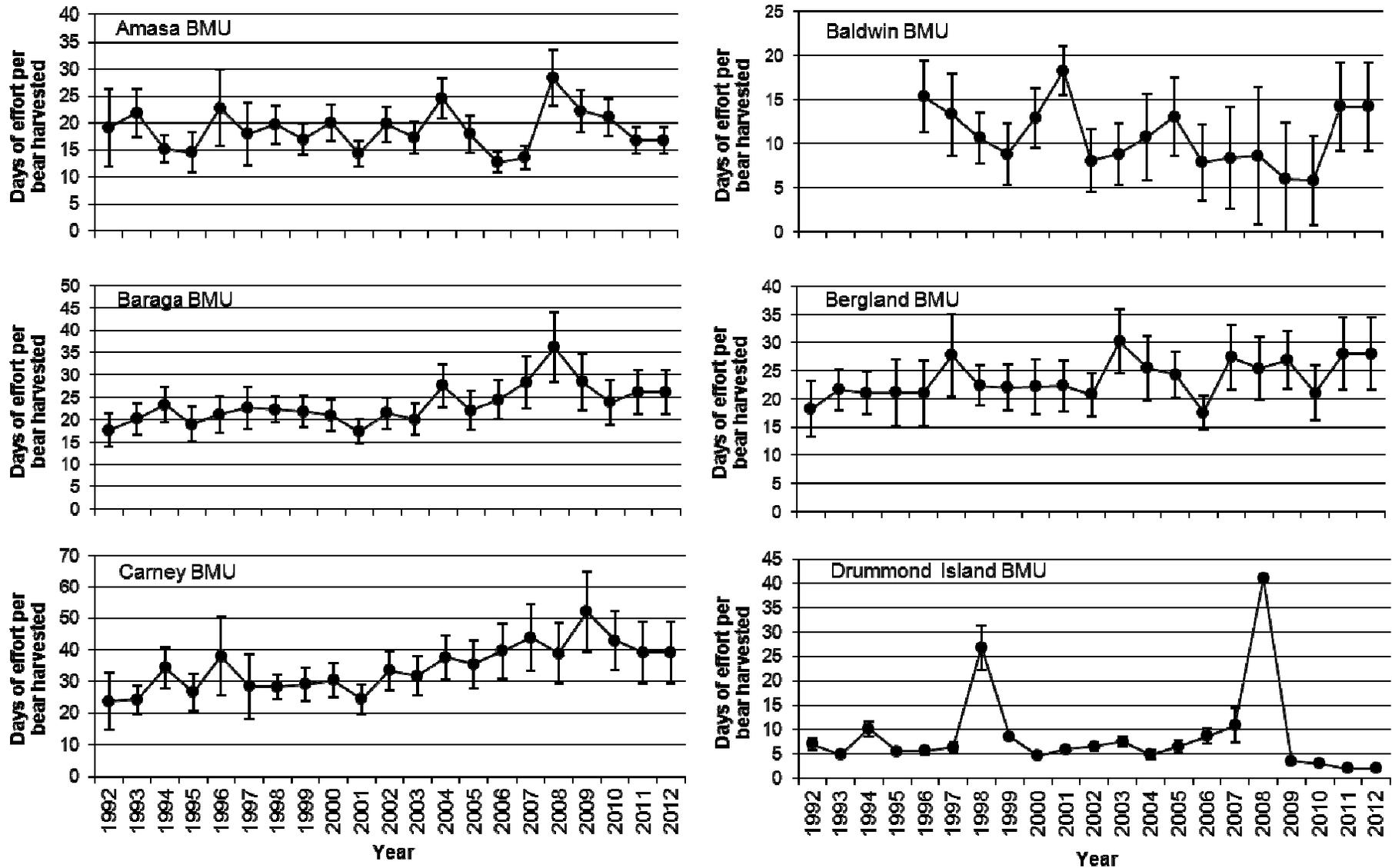


Figure 7. Estimated mean number of days required to harvest a bear in Michigan during 1992-2012, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.

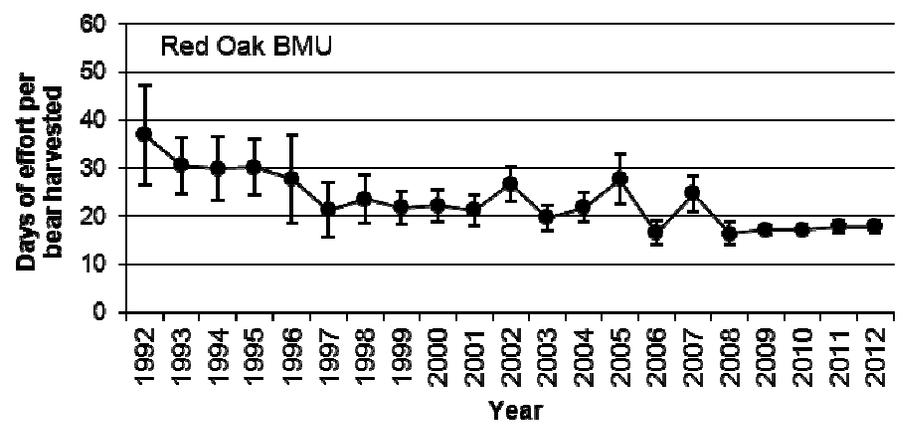
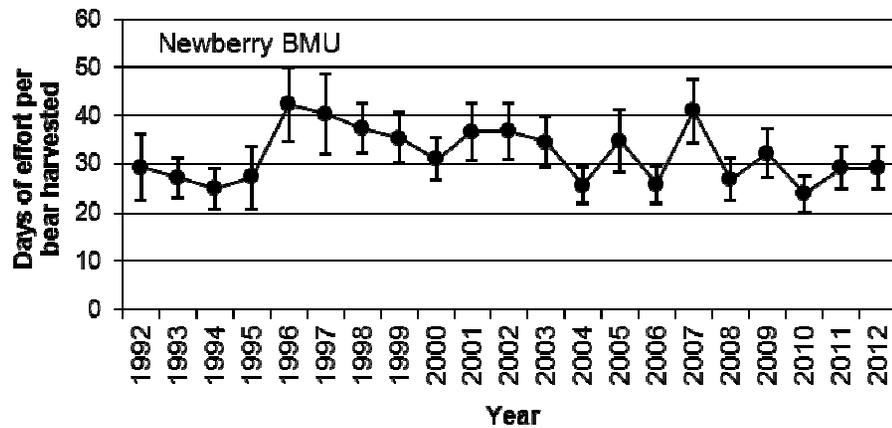
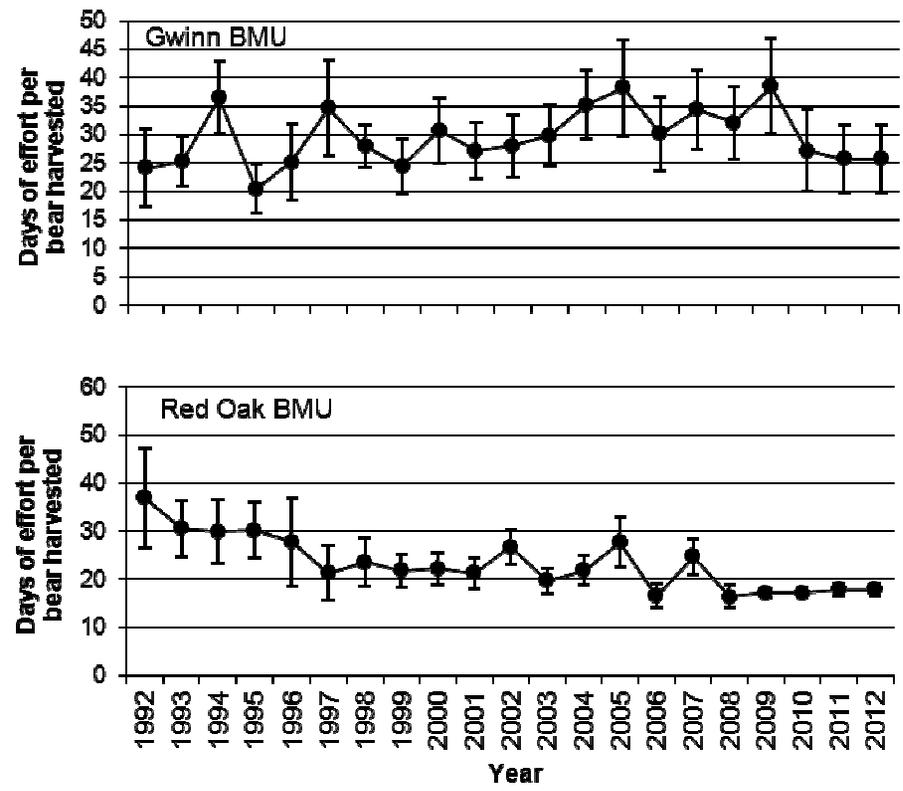
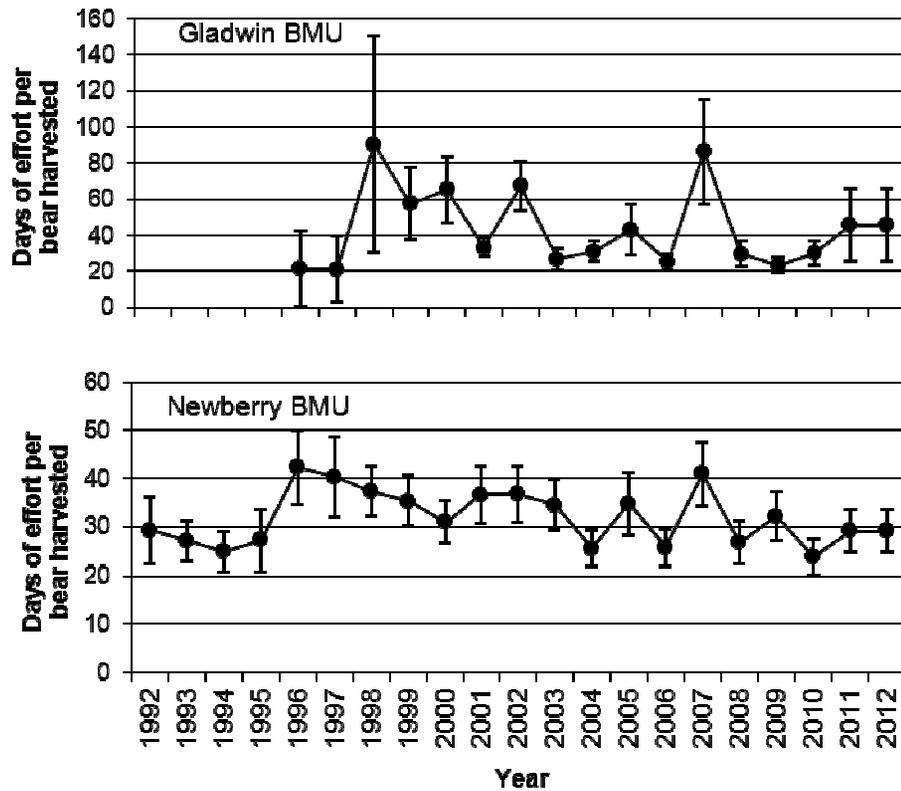


Figure 7 (continued). Estimated mean number of days required to harvest a bear in Michigan during 1992-2012, summarized by management unit. Baldwin and Gladwin management units were created in 1996. Vertical bars represent the 95% confidence interval.

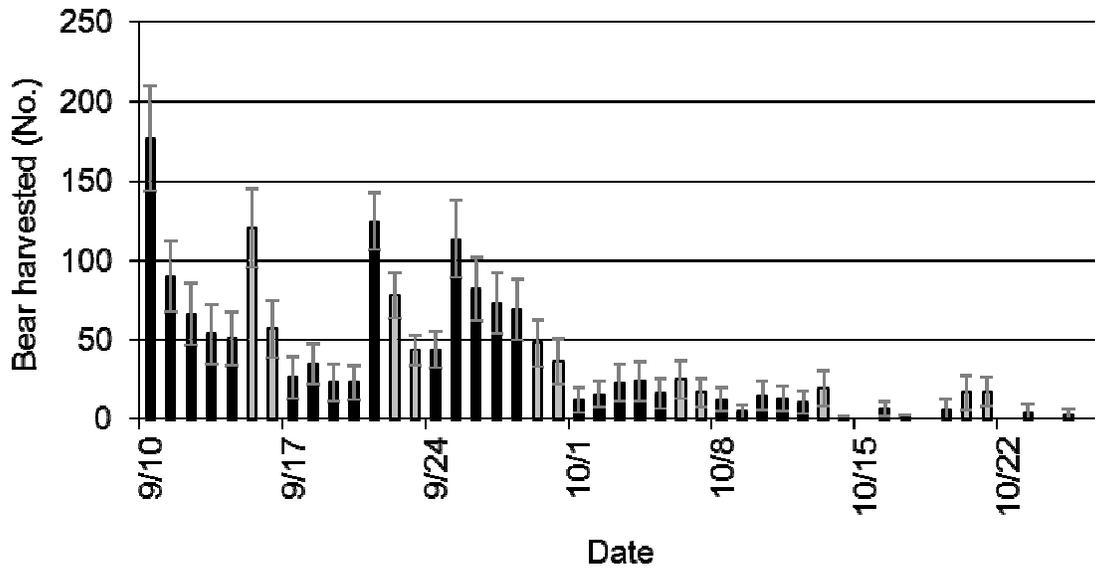


Figure 8. Estimated number of bear harvested by date during the 2012 bear hunting season (includes all hunt periods). Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval. The opening of the bear hunting season was September 10 in the UP and September 21 in the LP. Hunting with dogs in the UP started on September 15.

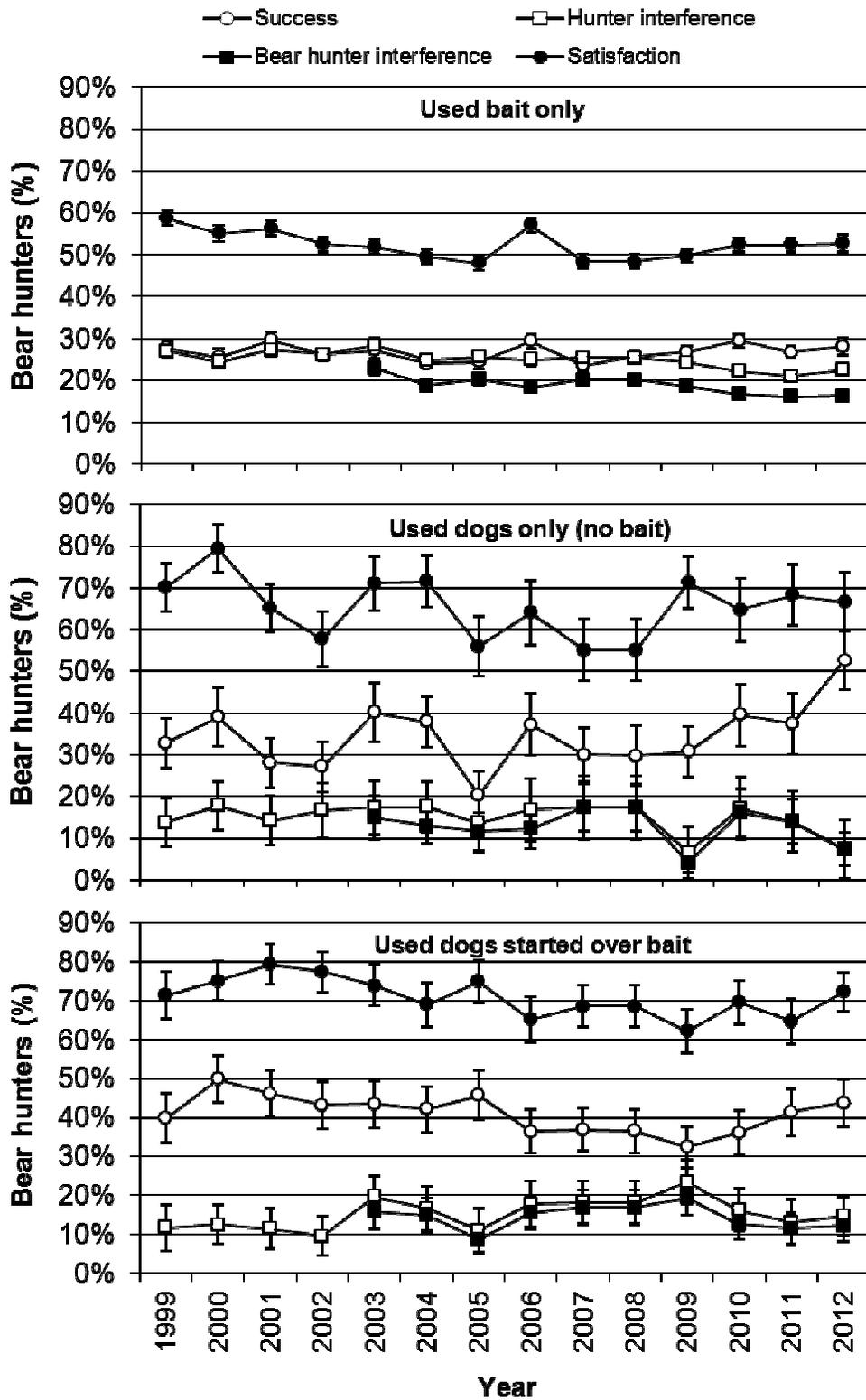


Figure 9. Estimated hunter success, interference, and satisfaction of bear hunters with their hunting experience in Michigan during 1999-2012, summarized by primary method of hunt. Vertical bars represent the 95% confidence interval. Interference was the proportion of hunters indicating they experienced interference from other hunters. Satisfaction was the proportion of hunters rating their hunting experience as very good or good.

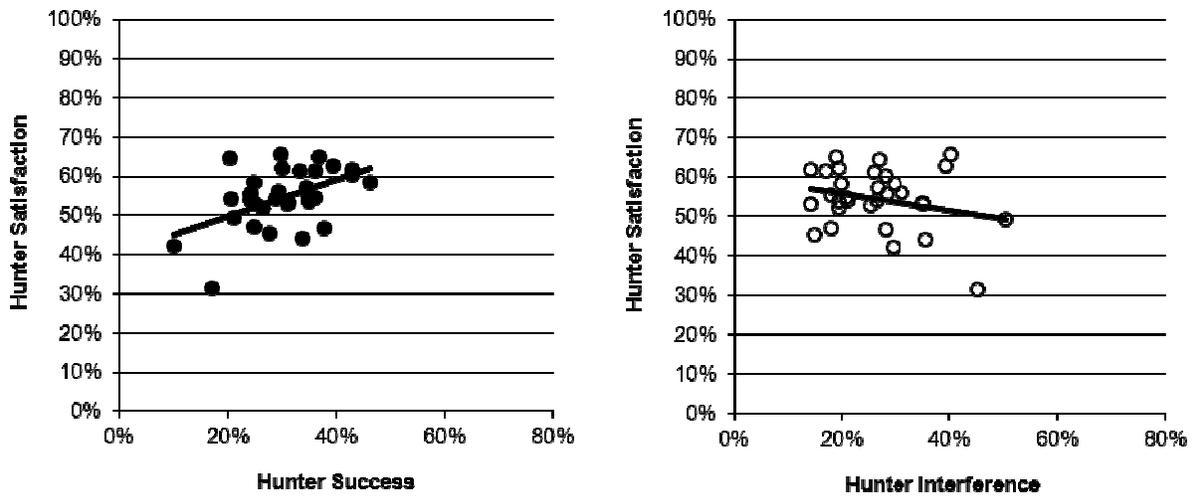


Figure 10. Hunter satisfaction (hunters rating their hunting experience as very good or good) relative to hunter success and hunter interference for 31 counties in Michigan during the 2012 bear hunting season (included only counties with at least 20 hunters). Interference was the proportion of hunters that reported interference from other hunters (all types of hunters).

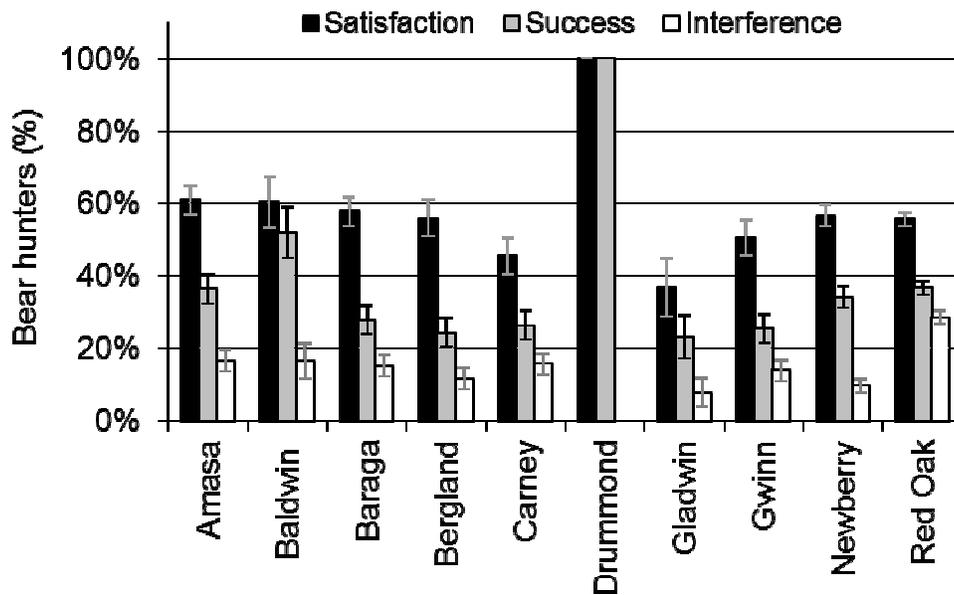


Figure 11. Estimated hunter satisfaction, hunting success, and level of hunter interference in Michigan's bear management units during the 2012 bear hunting season. Satisfaction measures the proportion of hunters rating their hunting experiences as very good or good. Error bars represent the 95% confidence 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 2012 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	505	2,084	445	291
Baldwin	70	2,291	68	63
Baraga	1,620	3,507	1,191	479
Bergland	1,265	2,055	937	438
Carney	815	1,956	597	355
Drummond Island	1	158	1	0
Gladwin	110	880	85	81
Gwinn	1,250	2,716	939	438
Newberry	1,520	6,404	1,213	656
Red Oak	835	10,053	747	683
Pure Michigan Hunt	3	NA	3	2
Statewide	7,994	32,104	6,226	3,486
Applicants opting for Preference Point ^d		19,048		

^aNumber of eligible applicants selecting the management unit as their first choice to hunt.

^bFewer licenses were sold than the number available because some successful applicants failed to purchase a license.

^cAn additional 447 hunters responded on the internet before the mail sample was selected; these internet responders were used in the calculating survey estimates.

^dApplicants 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 2012 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 ^a	No.	95% CL ^a	%	95% CL ^a	Days	95% CL ^a	Days	95% CL ^a	Days	95% CL ^a
Amasa	411	10	149	17	36	4	3,027	236	7.4	0.5	20.4	3.3
Baldwin	64	2	33	4	52	7	250	25	3.9	0.4	7.5	1.5
Baraga	1,091	28	301	44	28	4	7,830	644	7.2	0.6	26.1	5.2
Bergland	816	29	198	34	24	4	5,853	524	7.2	0.6	29.6	5.8
Carney	528	17	141	22	27	4	4,537	448	8.6	0.8	32.2	6.7
Drummond Is.	1	0	1	0	100	0	4	0	4.0	0.0	0.0	0.0
Gladwin	80	3	19	5	23	6	318	36	4.0	0.4	16.9	6.9
Gwinn	823	27	209	32	25	4	6,322	546	7.7	0.6	30.5	5.9
Newberry	1,111	22	377	36	34	3	7,774	533	7.0	0.5	20.6	2.8
Red Oak	716	7	263	17	37	2	3,818	158	5.3	0.2	14.5	1.3
Pure MI Hunt	1	0	1	0	100	0	10	0	10.0	0.0	10.0	0.0
Statewide ^b	5,644	57	1,691	81	30	1	39,743	1,247	7.0	0.2	23.6	1.6

^a95% confidence limits.

^bColumn totals may not equal statewide totals because of rounding error.

Table 3. Estimated number of hunters, harvest, hunter success, hunting effort, hunter satisfaction, and hunt interference during the 2012 Michigan bear hunting season.

County	Hunters ^a		Harvest ^a		Hunter success		Hunting effort (days) ^a		Hunter satisfaction ^b		Interfered hunters ^c	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Alcona	118	13	41	8	35	5	578	79	55	6	28	5
Alger	206	34	57	18	28	8	1,406	316	45	9	15	6
Alpena	75	10	23	6	31	7	371	65	53	7	35	7
Antrim	7	3	3	2	43	24	10	5	64	21	0	0
Arenac	0	0	0	0	0	0	0	0	0	0	0	0
Baraga	598	52	150	33	25	5	3,689	444	58	6	20	5
Bay	0	0	0	0	0	0	0	0	0	0	0	0
Benzie	8	3	4	2	52	19	19	6	52	19	48	19
Charlevoix	9	4	3	2	31	19	54	22	58	19	16	16
Cheboygan	35	8	13	5	38	11	208	55	46	11	28	10
Chippewa	249	31	90	20	36	7	1,735	318	54	7	21	6
Clare	31	6	10	4	34	12	107	30	44	13	36	13
Crawford	43	8	13	5	30	9	158	40	65	9	40	9
Delta	291	38	71	20	24	6	2,388	459	54	7	19	6
Dickinson	198	30	69	19	35	8	1,626	348	57	8	27	7
Emmet	20	6	7	4	37	14	64	22	50	14	0	0
Gladwin	33	6	6	3	17	9	163	38	31	11	45	12

^aNumber 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.

^bProportion of hunters that rated their hunting experience as very good or good.

^cProportion 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 2012 Michigan bear hunting season.

County	Hunters ^a		Harvest ^a		Hunter success		Hunting effort (days) ^a		Hunter satisfaction ^b		Interfered hunters ^c	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Gogebic	372	42	94	24	25	6	2,621	404	53	7	14	5
Gd. Traverse	5	2	0	0	0	0	12	5	53	22	47	22
Houghton	227	39	84	25	37	9	1,865	478	65	9	19	7
Iosco	13	5	6	3	46	18	53	25	54	18	23	16
Iron	290	21	97	15	33	5	2,204	261	61	5	17	4
Isabella	2	2	0	0	0	0	8	9	0	0	100	0
Kalkaska	42	8	9	4	21	8	208	46	54	10	26	9
Keweenaw	85	24	21	12	24	13	529	181	55	15	18	12
Lake	22	4	10	3	46	11	81	21	58	11	30	11
Leelanau	0	0	0	0	0	0	0	0	0	0	0	0
Luce	334	36	104	22	31	6	2,284	346	53	6	25	5
Mackinac	148	26	43	14	29	8	960	238	54	9	21	8
Manistee	7	2	5	2	64	18	15	7	82	15	18	15
Marquette	601	55	160	31	27	5	4,286	558	52	5	19	4
Mason	1	1	0	0	0	0	1	1	100	0	0	0
Mecosta	0	0	0	0	0	0	0	0	0	0	0	0
Menominee	376	26	96	19	25	5	3,291	399	47	6	18	4

^aNumber 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.

^bProportion of hunters that rated their hunting experience as very good or good.

^cProportion 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 2012 Michigan bear hunting season.

County	Hunters ^a		Harvest ^a		Hunter success		Hunting effort (days) ^a		Hunter satisfaction ^b		Interfered hunters ^c	
	Total	95%	Total	95%	%	95%	Total	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL
Midland	0	0	0	0	0	0	0	0	0	0	0	0
Missaukee	46	8	16	5	35	8	239	55	53	9	35	8
Montmorency	94	13	34	7	36	7	397	67	61	7	26	6
Muskegon	0	0	0	0	0	0	0	0	0	0	0	0
Newaygo	39	12	4	2	10	6	345	154	42	16	29	13
Oceana	1	1	0	0	0	0	7	6	0	0	100	0
Ogemaw	35	8	7	4	21	9	159	46	49	11	51	11
Ontonagon	463	50	140	31	30	6	3,040	477	62	6	20	5
Osceola	11	4	2	1	20	11	29	15	48	20	52	20
Oscoda	67	10	14	5	20	6	345	91	64	8	27	7
Otsego	46	8	21	6	45	9	233	52	64	9	38	9
Presque Isle	71	11	31	7	43	8	388	70	60	8	28	7
Roscommon	80	11	23	6	29	6	438	75	56	7	31	7
Schoolcraft	226	30	97	20	43	7	1,387	290	62	7	14	5
Wexford	15	4	10	3	67	13	38	12	76	11	15	8
Unreported	327	44	5	6	2	2	1,705	306	39	7	26	6

^aNumber 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.

^bProportion of hunters that rated their hunting experience as very good or good.

^cProportion 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 2012 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	152	17	37	4	163	17	40	4	94	15	23	4	2	2	0	1
Baldwin	28	4	44	7	24	4	38	6	12	3	18	5	0	0	0	0
Baraga	350	45	32	4	514	50	47	4	214	38	20	3	13	11	1	1
Bergland	228	37	28	4	435	42	53	5	147	31	18	4	6	7	1	1
Carney	317	26	60	5	102	20	19	4	100	20	19	4	9	7	2	1
Drummond Is.	0	0	0	0	0	0	0	0	1	0	100	0	0	0	0	0
Gladwin	34	6	43	8	38	7	48	8	5	3	6	4	3	3	4	3
Gwinn	320	38	39	4	356	39	43	4	132	28	16	3	14	10	2	1
Newberry	379	36	34	3	535	39	48	3	186	28	17	3	12	8	1	1
Red Oak	343	17	48	2	261	17	36	2	87	11	12	2	25	7	3	1
Pure MI Hunt	0	0	0	0	0	0	0	0	1	0	100	0	0	0	0	0
Statewide	2,151	86	38	1	2,428	91	43	2	979	69	17	1	85	21	2	0

Table 5. Estimated number of days of hunting effort on private and public lands during the 2012 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	1,167	200	978	170	872	176	11	15
Baldwin	106	22	101	20	42	18	0	0
Baraga	2,549	441	3,202	478	2,069	515	10	16
Bergland	1,538	327	3,057	475	1,217	336	41	48
Carney	2,740	362	857	232	927	288	14	20
Drummond Is.	0	0	0	0	4	0	0	0
Gladwin	142	34	157	36	19	16	0	0
Gwinn	2,306	408	2,676	423	1,271	348	69	101
Newberry	2,202	327	4,038	484	1,474	302	61	56
Red Oak	1,795	120	1,564	137	449	82	10	10
Pure MI Hunt	4	0	6	0	0	0	0	0
Statewide ^a	14,549	872	16,636	985	8,343	843	216	129

^aColumn 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, 2006-2012.

Region	Year						
	2006	2007	2008	2009	2010	2011	2012
Upper Peninsula							
Applicants	26,554	24,712	23,206	23,086	22,370	20,175	18,880
Licenses sold	7,786	7,774	8,195	7,260	7,786	7,813	5,323
Hunters	7,310	7,221	7,625	6,664	6,975	6,808	4,782
Harvest	2,176	1,817	1,948	1,759	2,046	1,873	1,376
Males (%)	63	62	59	62	57	61	59
Females (%)	36	36	40	38	42	39	41
Unknown (%)	1	2	1	1	0	0	0
Hunter-days	53,113	55,025	56,531	53,197	49,329	49,627	35,348
Hunter success (%)	30	25	26	26	29	28	29
Lower Peninsula							
Applicants	14,634	14,370	15,386	16,020	14,855	13,644	13,224
Licenses sold	1,670	1,740	1,983	1,693	1,187	1,204	900
Hunters	1,608	1,653	1,888	1,592	1,122	1,141	860
Harvest	463	365	528	451	347	313	314
Males (%)	60	56	58	54	54	59	49
Females (%)	38	43	40	46	46	40	51
Unknown (%)	2	1	1	0	0	0	0
Hunter-days	7,589	8,838	8,984	7,697	5,791	5,862	4,385
Hunter success (%)	29	22	28	28	31	27	37
Statewide							
Applicants ^a	55,050	54,014	55,458	56,772	54,937	51,621	51,152
Licenses sold ^b	9,456	9,514	10,178	8,953	8,976	9,020	6,226
Hunters	8,918	8,874	9,512	8,256	8,097	7,949	5,643
Harvest	2,639	2,181	2,476	2,210	2,393	2,187	1,690
Males (%)	63	61	59	60	57	61	57
Females (%)	36	37	40	40	43	39	43
Unknown (%)	1	2	1	0	0	0	0
Hunter-days	60,702	63,862	65,516	60,894	55,120	55,489	39,733
Hunter success (%)	30	25	26	27	30	28	30

^aNumber of applicants statewide included people that applied for a preference point.

^bNumber of license sold statewide included people that received Pure Michigan Hunt licenses, which were valid in both the UP and LP.

Table 7. Estimated proportion of hunters that used firearms, crossbows, and archery equipment while hunting bears in Michigan, 2012.

Management unit	Hunting equipment							
	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	85	3	17	3	5	2	0	1
Baldwin	84	5	16	5	2	2	0	0
Baraga	84	3	15	3	10	3	0	0
Bergland	87	3	12	3	6	2	0	0
Carney	85	3	16	3	8	3	0	0
Drummond Is.	100	0	0	0	100	0	0	0
Gladwin	94	4	8	4	5	3	0	0
Gwinn	85	3	14	3	8	2	0	1
Newberry	90	2	10	2	5	1	0	0
Red Oak	88	2	28	2	5	1	0	0
Pure MI Hunt	100	0	0	0	0	0	0	0
Statewide ^a	87	1	15	1	7	1	0	0

^aRow totals equal more than 100% because hunters could use more than one type of equipment during season.

Table 8. Estimated number of hunters that used firearms, crossbows, and archery equipment while hunting bears in Michigan, 2012.

Management unit	Hunting equipment							
	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL
Amasa	349	15	68	13	23	8	2	2
Baldwin	54	4	11	3	1	1	0	0
Baraga	917	42	164	34	105	28	0	0
Bergland	713	37	95	25	51	19	0	0
Carney	448	23	82	18	43	14	0	0
Drummond Is.	1	0	0	0	1	0	0	0
Gladwin	76	4	6	4	4	3	0	0
Gwinn	702	35	114	26	64	20	3	5
Newberry	1,005	29	107	21	56	15	0	0
Red Oak	630	13	203	15	32	7	1	2
Pure MI Hunt	1	0	0	0	0	0	0	0
Statewide ^a	4,895	78	850	61	379	46	6	5

^aRow 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 9. Estimated proportion of bears harvested by firearms, crossbows, and archery equipment during the 2012 bear hunting season in Michigan.

Management unit	Hunting equipment							
	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	85	5	11	4	4	3	0	0
Baldwin	88	6	12	6	0	0	0	0
Baraga	82	7	11	5	6	4	1	2
Bergland	88	6	7	5	5	4	0	0
Carney	95	4	3	3	2	2	0	0
Drummond Is.	100	0	0	0	0	0	0	0
Gladwin	100	0	0	0	0	0	0	0
Gwinn	86	6	11	5	3	3	0	0
Newberry	90	3	7	3	2	1	1	1
Red Oak	88	3	11	2	1	1	0	0
Pure MI Hunt	100	0	0	0	0	0	0	0
Statewide ^a	88	2	9	2	3	1	0	0

Table 10. Estimated number of bears harvested during the 2012 bear hunting season in Michigan, summarized by hunting equipment used to take the bear.

Management unit	Hunting equipment							
	Firearms		Compound, recurve, or long bows		Crossbows		Unknown	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL
Amasa	127	16	16	6	6	4	0	0
Baldwin	29	4	4	2	0	0	0	0
Baraga	248	40	33	17	17	12	3	5
Bergland	174	33	14	10	10	9	0	0
Carney	134	22	5	5	2	3	0	0
Drummond Is.	1	0	0	0	0	0	0	0
Gladwin	19	5	0	0	0	0	0	0
Gwinn	180	31	23	12	6	6	0	0
Newberry	339	35	27	11	9	5	2	4
Red Oak	230	16	29	7	3	2	0	0
Pure MI Hunt	1	0	0	0	0	0	0	0
Statewide ^a	1,482	77	151	28	52	18	6	7

Table 11. Primary hunting methods used to hunt bear in Michigan, 2012.

Method	Number of hunters	95% CL	Method used (%)
Bait only	4,804	80	
Dogs only	239	34	
Dogs and bait	418	48	
Other	122	27	
Unknown	61	19	

Table 12. Hunting methods used to harvest bear in Michigan, 2012.

Method	Number of hunters	95% CL	Method used (%)
Bait only	1,343	75	
Dogs only	130	23	
Dogs and bait	200	32	
Other	11	8	
Unknown	7	5	

Table 13. Hunters' level of satisfaction with the number of bear seen during the 2012 bear hunting season.

Management unit	Satisfaction level							
	Very good or good		Neutral		Poor or very poor		No answer or not applicable	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	41	4	11	3	42	4	5	2
Baldwin	52	7	10	4	34	6	4	3
Baraga	33	4	13	3	42	4	11	3
Bergland	32	5	12	3	46	5	10	3
Carney	25	4	15	3	48	5	13	3
Drummond Is.	100	0	0	0	0	0	0	0
Gladwin	29	7	10	5	38	8	23	7
Gwinn	32	4	16	3	41	4	11	3
Newberry	37	3	16	2	37	3	10	2
Red Oak	39	2	15	2	36	2	9	1
Pure MI Hunt	0	0	100	0	0	0	0	0
Statewide	34	1	14	1	41	2	10	1

Table 14. Hunters' level of satisfaction with the number of opportunities to take a bear during the 2012 bear hunting season.

Management unit	Satisfaction level							
	Very good or good		Neutral		Poor or very poor		No answer or not applicable	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	40	4	12	3	36	4	12	3
Baldwin	52	7	10	4	32	6	6	3
Baraga	30	4	12	3	43	4	16	3
Bergland	27	4	12	3	46	5	15	3
Carney	22	4	13	3	46	5	19	4
Drummond Is.	100	0	0	0	0	0	0	0
Gladwin	23	6	6	4	44	8	27	7
Gwinn	28	4	15	3	41	4	17	3
Newberry	34	3	13	2	38	3	15	2
Red Oak	35	2	12	2	41	2	13	2
Pure MI Hunt	0	0	0	0	100	0	0	0
Statewide	31	1	12	1	41	2	15	1

Table 15. Hunters' level of satisfaction with overall bear hunting experience during the 2012 bear hunting season.

Management unit	Satisfaction level							
	Very good or good		Neutral		Poor or very poor		No answer or not applicable	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Amasa	61	4	16	3	20	3	4	2
Baldwin	60	7	12	4	28	6	0	0
Baraga	58	4	15	3	24	4	3	2
Bergland	56	5	17	4	25	4	2	2
Carney	46	5	17	4	32	4	5	2
Drummond Is.	100	0	0	0	0	0	0	0
Gladwin	37	8	21	7	32	8	10	5
Gwinn	50	5	17	3	30	4	4	2
Newberry	56	3	18	3	21	3	5	1
Red Oak	56	2	14	2	27	2	4	1
Pure MI Hunt	100	0	0	0	0	0	0	0
Statewide	55	2	16	1	25	1	4	1

Table 16. Number and proportion of hunters that experienced interference with another hunter during the 2012 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	18	3	73	14	11	3	46
Baldwin	34	6	22	4	22	6	14	4
Baraga	17	3	181	36	14	3	149	34
Bergland	19	4	156	32	14	3	115	28
Carney	21	4	110	21	14	3	76	18
Drummond Is.	0	0	0	0	0	0	0	0
Gladwin	44	8	35	7	30	7	24	6
Gwinn	22	4	183	31	17	3	139	28
Newberry	20	3	218	30	17	3	187	28
Red Oak	30	2	218	16	19	2	136	14
Pure MI Hunt	0	0	0	0	0	0	0	0
Statewide	21	1	1,196	72	16	1	886	65

Table 17. Number and proportion of hunters that used a hunting guide during the 2012 bear hunting season.

Management unit	%	95% CL	No.	95% CL
Amasa	15	3	63	12
Baldwin	10	4	7	3
Baraga	11	3	115	29
Bergland	15	3	122	28
Carney	7	2	38	13
Drummond Island	100	0	1	0
Gladwin	13	5	10	4
Gwinn	9	3	71	21
Newberry	13	2	145	25
Red Oak	6	1	40	8
Pure MI Hunt	0	0	0	0
Statewide	11	1	611	56

Table 18. Hunting methods used by guides to hunt bear in Michigan, 2012.

Management unit	Hunted over bait only		Used dogs only (no bait)		Used dogs started over bait		Used other method		Unknown method	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL
Amasa	46	11	0	0	13	6	0	0	4	4
Baldwin	5	2	0	0	1	1	0	0	0	0
Baraga	94	28	3	5	7	8	0	0	10	5
Bergland	106	27	0	0	5	5	1	0	9	5
Carney	25	10	2	3	8	6	0	0	3	3
Drummond Island	0	0	0	0	1	0	0	0	0	0
Gladwin	10	4	0	0	0	0	0	0	0	0
Gwinn	46	17	4	5	17	10	0	0	3	5
Newberry	117	23	9	6	11	7	0	0	8	0
Red Oak	23	6	8	4	6	3	0	0	2	2
Pure MI Hunt	0	0	0	0	0	0	0	0	0	0
Statewide	474	51	27	11	69	18	1	0	40	10

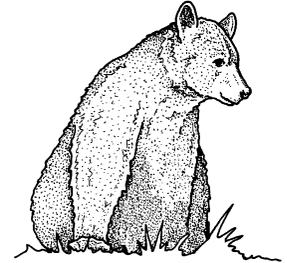
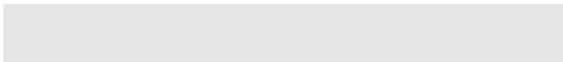
Appendix A

2012 Michigan Bear Harvest Questionnaire



2012 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 2012 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 <i>(List each county that you hunted for bear; for example, Marquette County)</i>	NUMBER OF DAYS HUNTED	TYPE OF LAND
		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
		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
		¹ <input type="checkbox"/> Private ² <input type="checkbox"/> Public ³ <input type="checkbox"/> Both

**3. Did you hunt with a firearm, crossbow, or bow during the 2012 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 2012 bear season? *(Please 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

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. At any time during the 2012 season, did you hire a guide's service to hunt bear in Michigan?

- ¹ Yes ² No *(If no, please skip to question 8.)*

7. If yes, what hunting techniques were used most often by the guide? *(Please 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

8. Did you kill a bear and place your harvest tag on it?

¹ Yes ² No (If no, please skip to question 10.)

9. 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 2012						
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 2012						
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

10. Did other hunters interfere with your bear hunting?

¹ Yes ² No (Skip to question 12.)

11. If you answered "yes" to the previous question, was the interference caused by other bear hunters?

¹ Yes ² No

12. How would you rate the following for your 2012 bear hunting season:

(Select one choice per item.)

	Very Good	Good	Neutral	Poor	Very Poor	Not Applicable
a. Number of bear 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 opportunities you had to take a bear.	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 bear 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"/>

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