



1999 MICHIGAN BLACK BEAR HUNTER SURVEY

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ABSTRACT

A survey of bear hunters was conducted following the 1999 hunting season to determine hunter participation, hunting methods, bear harvest, and hunter satisfaction. In 1999, an estimated 6,516 hunters spent 45,521 days afield and harvested 1,817 bears, an increase in harvest of 18% from 1998. Statewide, 28% of hunters harvested a bear. Baiting was the most common hunting method used to locate and harvest bears. Statewide, most hunters (60%) rated their hunting experience as very good or good.

INTRODUCTION

The current system of issuing a limited number of black bear (*Ursus americanus*) hunting licenses for each bear management unit began in 1990. Before 1990, an unlimited number of bear licenses were sold, and licenses were valid in all areas open to bear hunting. In 1999, ten bear management units in northern Michigan totaling 28,923 square miles were open for bear hunting (Fig. 1). Bear could be hunted September 10-October 26 in most of the Upper Peninsula and September 17-23 in most of the northern Lower Peninsula. The Red Oak Management Unit in the Lower Peninsula also had an archery-only hunt during October 8-14. The Wildlife Bureau set license quotas for each management unit and randomly allocated 8,097 licenses among 37,906 eligible applicants. Licenses were valid on all land ownership types and allowed a hunter to take one bear of either sex, excluding cubs and sows with cubs. Bear could be harvested with either firearm or archery equipment, except for the special archery-only hunt in the Red Oak Management Unit.

The Wildlife Bureau has the authority and responsibility to protect and manage the wildlife resources of the State of Michigan. Harvest surveys are one of the primary management tools used by the Wildlife Bureau 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, are used to monitor bear populations and establish harvest regulations.



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METHODS

Following the 1999 bear hunting season, a questionnaire was sent to 2,929 randomly selected people that had purchased a bear hunting license (resident, senior, and 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, and their hunting methods. Successful hunters also were asked to report the harvest date, sex of the bear taken, and harvest method. Finally, all bear hunters were asked to rate their overall hunting experience. Estimates were calculated using a stratified random sampling design (Cochran 1977) and were presented along with their 95% confidence limit (CL). This confidence limit 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.

Questionnaires were mailed initially during late October 1999. A reminder note and up to two follow-up questionnaires were mailed to nonrespondents. Although 2,929 people were sent the questionnaire, 27 surveys were undeliverable resulting in an adjusted sample size of 2,902. Questionnaires were returned by 2,628 people, yielding a 91% adjusted response rate.

RESULTS

In 1999, 6,767 licenses were purchased for the bear hunting season, and 94.7% ($\pm 1.0\%$) of these license buyers hunted bears (Table 1). These hunters spent 45,521 days afield ($\bar{x} = 7.0$ days/hunter) and harvested 1,817 bears, an 18% increase in harvest from 1998 (Fig. 2, Table 1, 2). The number of hunters and hunting efforts in 1999 was the highest number recorded since the present bear management system was initiated in 1990 (Fig. 2). Of the bears harvested, 65% were males ($1,186 \pm 82$ bears) and 34% females (617 ± 61 , Table 2). Statewide, 28% of hunters harvested a bear in 1999 (Table 1), an increase from 26% last year. Hunter success ranged from 8-46% among the bear management units.

Most hunters (71%) used only firearms while hunting bear, although 29% of the hunters used archery equipment only or a combination of firearm and archery equipment (Table 3). Moreover, most hunters (81%) relied primarily on baiting as a means of locating and attracting bears (Table 4). About 13% of hunters relied primarily on dogs alone or in combination with baiting to locate bears. Only 10% of the hunters (657 ± 66 hunters) hired a hunting guide. Most hunting guides (83%) also relied primarily on baiting to locate bears for their clients. Most hunters (68%) did not use any electronic devices when hunting bears. But for those hunters using electronic devices, dog retrieval collars (907 ± 73 hunters) and trail monitors (648 ± 63) were the most commonly used devices.

About 80% of the harvested bears were taken with the aid of bait. The proportion of bears harvested with bait was nearly identical to the proportion of hunters using bait as their primary means of locating bears (80% versus 81%; Table 4, 5). Although 13% of the hunters depended primarily on dogs to locate bears, 18% of the harvested bears were taken using

dogs. Consequently, hunters using dogs were more likely to harvest a bear than hunters relying on bait only.

Hunter satisfaction is one measure used to assess the Black Bear Management Program in Michigan. Statewide, most hunters (60%) rated their hunting experiences as very good or good and only 18% rated their hunting experiences as being poor or very poor (Table 6). Hunter success is affected by many factors such as hunting success and whether hunting activities were completed without interference. In 1999, 25% of the hunters ($1,634 \pm 92$ hunters) were interfered during their hunt by other hunters. Generally, hunters in the Upper Peninsula were less likely to be interfered by other hunters than hunters in the Lower Peninsula. Hunter satisfaction was lowest in the Gladwin Management Unit which also had the lowest hunter success rate and highest interference level (Table 6, Fig. 3).

LITERATURE CITED

Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York. 428pp.

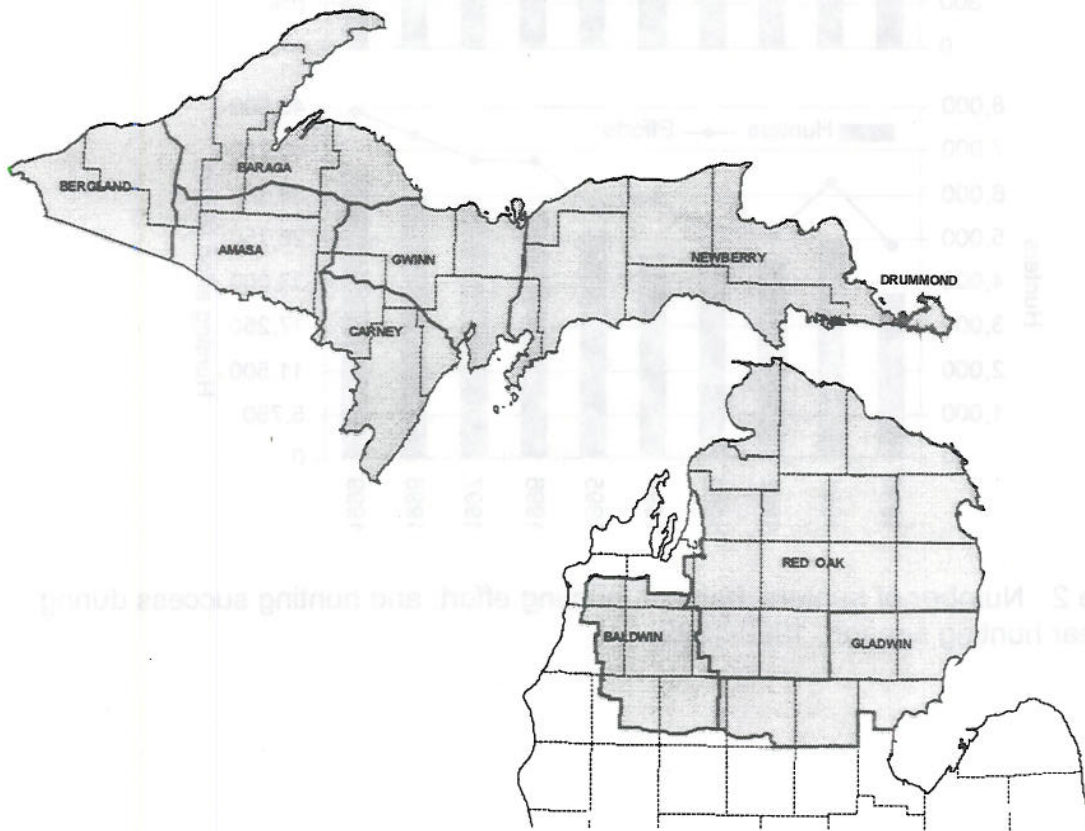


Figure 1. 1999 bear management units in northern Michigan.

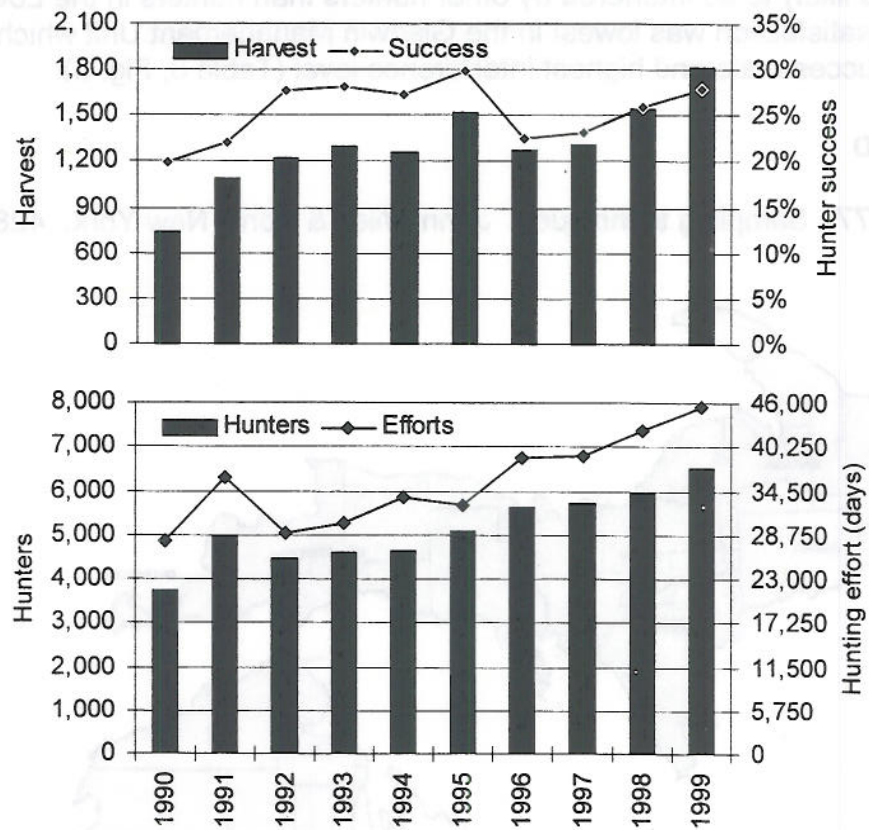


Figure 2. Number of hunters, harvest, hunting effort, and hunting success during the bear hunting season, 1990-1999.

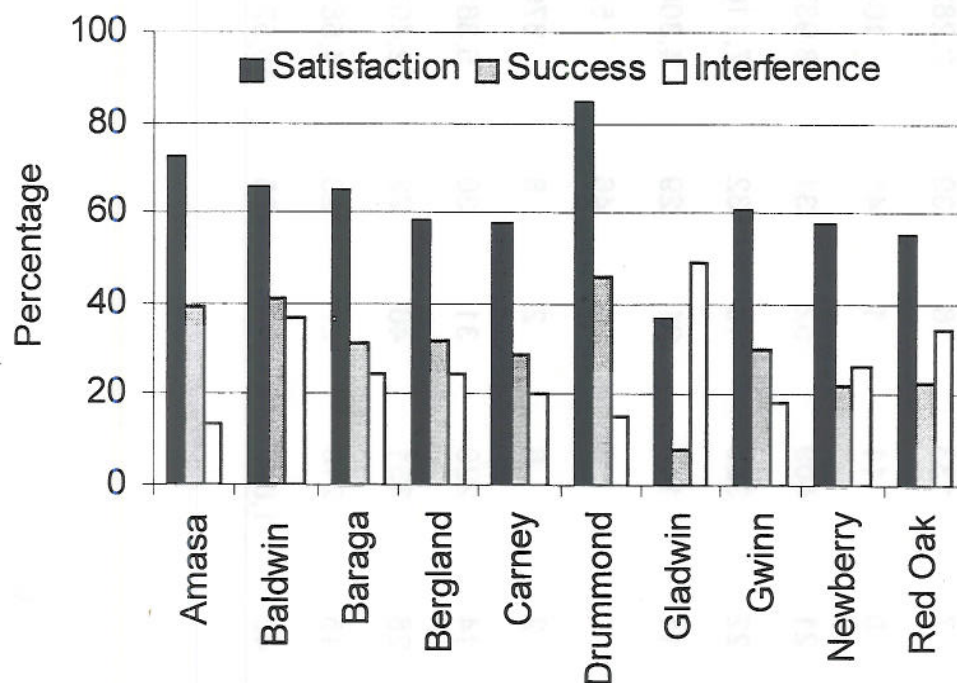


Figure 3. Hunter satisfaction, hunting success, and level of hunter interference in Michigan during 1999 bear hunting season. Satisfaction measures the proportion of hunters rating their hunting experiences as very good or good.

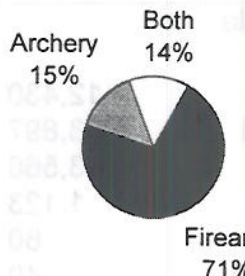
Table 1. Number of hunters, harvest, and hunting effort during the 1999 Michigan bear hunting season.

Management unit	Licenses available	Number of eligible applicants	Licenses sold	Hunters		Harvest		Hunter success (%)	Hunting effort		Days per hunter (\bar{x})
				No.	95% CL ^a	No.	95% CL ^a		Days	95% CL ^a	
Amasa	395	2,163	354	342	7	133	16	39	2,282	196	6.7
Baldwin	33	823	27	27	0	11	1	41	104	5	3.9
Baraga	1,577	5,147	1,325	1,307	21	409	52	31	8,937	646	6.8
Bergland	1,347	2,955	1,056	1,021	22	323	43	32	7,116	551	7.0
Carney	610	2,760	531	505	11	148	21	29	4,300	320	8.5
Drummond	14	308	13	13	0	6	0	46	53	0	4.1
Gladwin	100	467	80	75	2	6	2	8	379	32	5.1
Gwinn	924	3,734	762	743	14	220	31	30	5,361	376	7.2
Newberry	1,997	9,766	1,665	1,579	28	351	46	22	12,403	693	7.9
Red Oak	1,100	9,783	954	903	15	210	27	23	4,586	210	5.1
Statewide	8,097	37,906	6,767	6,516	48	1,817	95	28	45,521	1,236	7.0

Table 2. Number of hunters, harvest, and hunting effort during Michigan bear hunting season, 1993-1999.

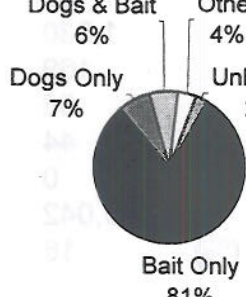
Region	Year						
	1993	1994	1995	1996	1997	1998	1999
Upper Peninsula							
Applicants	12,430	15,182	18,280	20,082	21,224	25,620	26,833
Licenses sold	3,897	4,130	4,684	5,428	5,490	5,242	5,706
Hunters	3,560	3,753	4,242	4,705	4,732	4,961	5,511
Harvest	1,123	1,119	1,386	1,154	1,116	1,353	1,590
Males (%)	60	59	55	64	54	59	65
Females (%)	40	41	44	36	45	40	34
Unknown (%)	0	0	1	0	1	1	1
Hunter-days	25,177	29,934	29,036	34,690	34,195	37,123	40,452
Hunter success (%)	32	30	33	25	24	27	29
Lower Peninsula							
Applicants	3,937	4,446	5,365	6,646	7,904	10,295	11,073
Licenses sold	1,166	966	968	1,040	1,135	1,039	1,061
Hunters	1,030	860	852	905	961	993	1,005
Harvest	169	141	136	112	199	192	227
Males (%)	56	50	56	61	53	63	64
Females (%)	44	50	44	37	44	35	36
Unknown (%)	0	0	0	2	3	2	0
Hunter-days	5,042	4,558	3,634	4,051	4,877	4,629	5,069
Hunter success (%)	16	16	16	12	21	19	23
Statewide							
Applicants	16,367	19,628	23,645	26,728	29,128	35,915	37,906
Licenses sold	5,063	5,096	5,652	6,468	6,625	6,281	6,767
Hunters	4,590	4,613	5,094	5,610	5,693	5,956	6,516
Harvest	1,292	1,260	1,522	1,266	1,315	1,545	1,817
Males (%)	59	58	55	64	54	59	65
Females (%)	41	42	44	36	45	39	34
Unknown (%)	0	0	1	0	1	2	1
Hunter-days	30,219	33,492	32,670	38,741	39,072	41,752	45,521
Hunter success (%)	28	27	30	23	23	26	28

Table 3. Hunting equipment used to hunt bear in Michigan, 1999.

Equipment	Number of hunters	95% CL ^a	Equipment used (%)
Firearm	4,660	100	 <p>Archery 15%</p> <p>Both 14%</p> <p>Firearm 71%</p>
Archery	946	75	
Both firearm and archery	897	71	
Unknown	13	9	

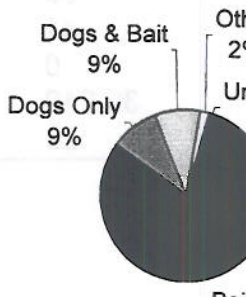
^a 95% confidence limits.

Table 4. Primary hunting methods used to hunt bear in Michigan, 1999.

Method	Number of hunters	95% CL ^a	Method used (%)
Bait only	5,244	91	 <p>Dogs & Bait 6%</p> <p>Other 4%</p> <p>Unknown 2%</p> <p>Dogs Only 7%</p> <p>Bait Only 81%</p>
Dogs only	447	53	
Dogs and bait	398	51	
Other	270	41	
Unknown	157	31	

^a 95% confidence limits.

Table 5. Hunting methods used to harvest bear in Michigan, 1999.

Method	Number of hunters	95% CL ^a	Method used (%)
Bait only	1,446	88	 <p>Dogs & Bait 9%</p> <p>Other 2%</p> <p>Unknown 1%</p> <p>Dogs Only 9%</p> <p>Bait Only 79%</p>
Dogs only	164	34	
Dogs and bait	156	32	
Other	30	14	
Unknown	21	12	

^a 95% confidence limits.

Table 6. Level of hunter interference and satisfaction of bear hunters with their hunting experience in Michigan during 1999.

Management unit	Hunter success (%)	Hunters interfered by other hunters (%)	Satisfaction level (%)					
			Very good	Good	Neutral	Poor	Very poor	No answer
Amasa	39	14	34	38	15	8	4	0
Baldwin	41	37	38	27	15	8	12	0
Baraga	31	24	30	35	20	8	5	2
Bergland	32	25	27	31	22	10	9	1
Carney	29	20	27	30	23	12	6	2
Drummond	46	15	54	31	8	0	8	0
Gladwin	8	49	13	24	24	14	21	5
Gwinn	30	18	26	34	23	9	7	1
Newberry	22	27	22	36	22	10	9	1
Red Oak	23	34	24	31	21	12	11	1
Statewide	28	25	26	34	21	10	8	1

