



2001 MICHIGAN FURBEARER HARVEST SURVEY

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ABSTRACT

A survey of furtakers was conducted following the 2001 hunting and trapping seasons to determine the number of participants, days afield, and furbearer harvests. In 2001, about 12,086 furtakers pursued furbearers. Trapper numbers peaked during the early 1980s. Although the number of people trapping in 2001 was well below the record highs, the number of trappers increased by 24% between 2000 and 2001. Trappers most often pursued raccoons in 2001, although muskrat, beaver, and mink were also popular targets. Hunters most commonly sought coyotes and raccoon. Harvest of most furbearers increased since last year. Increased harvests were likely the result of greater numbers of furtakers and milder winter weather.

INTRODUCTION

The Michigan Department of Natural Resources (DNR) 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 DNR to accomplish its statutory responsibility. Estimating harvests and hunter participation are among the primary objectives of these surveys. Estimate of furbearers derived from harvest surveys, mandatory registration, winter track counts, and population modeling are used to monitor furbearer populations and establish harvest regulations.

The primary furbearing animals harvested for their pelts in Michigan during 2001 were muskrat (*Ondatra zibethica*), mink (*Mustela vison*), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), striped skunk (*Mephitis mephitis*), weasels (*Mustela* spp.), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), coyote (*Canis latrans*), bobcat (*Felis rufus*), beaver (*Castor canadensis*), river otter (*Lutra canadensis*), badger (*Taxidea taxus*),



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fisher (*Martes pennanti*), and marten (*Martes americana*). Most of these animals could be harvested during late fall through mid-winter (Table 1); however, opossum, weasels, and skunks could be taken year-round with any hunting or trapping license. Moreover, landowners could take raccoons and coyotes throughout the year on their property without a license if these animals were causing damage.

METHODS

Following the 2001 hunting and trapping seasons, a questionnaire was sent to a randomly selected sample of people that had purchased a fur harvester license (Table 2). People receiving the questionnaire were asked to report whether they pursued furbearers, number of days spent afield, and whether they harvested any furbearing animals. Estimates were calculated using a stratified random sampling design (Cochran 1977). Furtakers were grouped into 1 of 4 strata on the basis of their residence. These strata included residents of the Upper Peninsula (UP), northern Lower Peninsula (NLP), southern Lower Peninsula (SLP), and nonresidents (Figure 1).

Estimates were calculated 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. Harvest estimates did not include nuisance animals legally taken out of season and illegal take by unlicensed people. Also, estimates were not adjusted for possible response or nonresponse biases.

Questionnaires were mailed initially during April, and a reminder note and up to two follow-up questionnaires were mailed to nonrespondents. About 2% of the questionnaires were undeliverable (Table 2). Of the questionnaires that were delivered, 78% of the questionnaires were completed and returned.

Harvest for some furbearers was also estimated through tallying registration reports. All furtakers harvesting a river otter, bobcat, badger, fisher, or marten were required to present these animals at a DNR office for registration. Marten harvest was determined only by registration.

RESULTS

In 2001, 19,082 licenses were purchased by 18,874 people (Figure 2, Table 2). In contrast, an average of 17,736 licenses was sold during 1998-2000. Thus, license sales were nearly 8% higher in 2001 than the preceding 3-year average. Most of the license buyers were men (98%), and the average age of the license buyers was 42 years (Figure 3). About 5% of the license buyers were younger than 17 years old (N = 1,022).

Mail Harvest Survey.-- Overall, 64% of these license buyers either hunted or trapped furbearers during 2001 (Table 3). About 35% of the license buyers trapped, and 43% hunted furbearers during 2001. Trappers most often pursued raccoons, although muskrat, beaver,

and mink were also popular targets (Table 4). Hunters most commonly sought coyotes and raccoon. Raccoons and coyotes ranked as the most frequent targets of all furtakers.

Trapper numbers peaked during the early 1980s (Figure 4). The number of trappers during recent years has been comparable to the numbers active during the 1960s. Although the number of people trapping in 2001 was well below the record highs, the number of trappers increased by 24% between 2000 and 2001. The number of hunters pursuing furbearers (all legal species) was not estimated prior to 1986 (Figure 4). Changes in trapper and hunter numbers generally has followed the same pattern since 1986.

Harvests of most furbearers generally increased between 2000 and 2001 (Figures 5-7). The increased harvest of most furbearers generally followed the increase in hunter and trapper numbers (Figure 4). Winter weather was generally milder during 2001 than during 2000 (Chadwick 2001, 2002) which may have helped improve harvest success of furtakers. Beginning in 2001, badger could be taken in portions of the Upper Peninsula; thus, the expanded area open to trapping may partly explain the increased numbers of badger that were harvested.

Registration Data.--The number of bobcat, fisher, and badger registered generally has increased since 1985, while the number of otter has shown no clear trends (Figure 8, Table 5). Between 2000 and 2001, the number of bobcat, fisher, and badger harvested increased sharply ($\geq 59\%$). A record high number of bobcats and badgers were registered in 2001.

Harvest estimates for bobcat and badger derived from the mail harvest survey were greater than the number of animals registered; however, annual changes since 1998 generally have followed the same trends. Harvest estimates for fisher and otter from the mail survey were similar to the number of animals registered.

ACKNOWLEDGEMENTS

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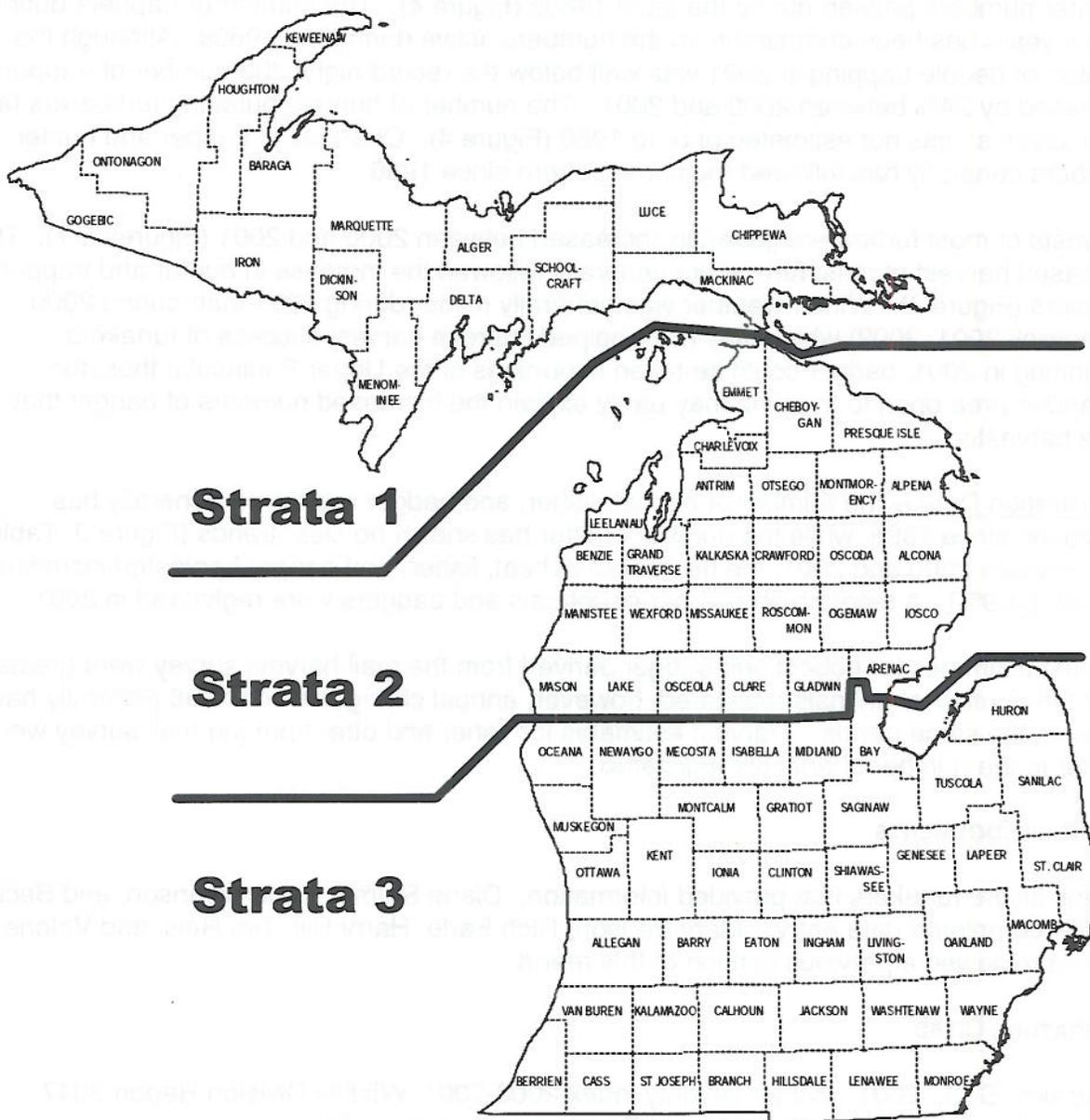


Figure 1. Stratum boundaries used for the analysis of the Michigan furbearer harvest survey. Nonresidents were included as a fourth strata.

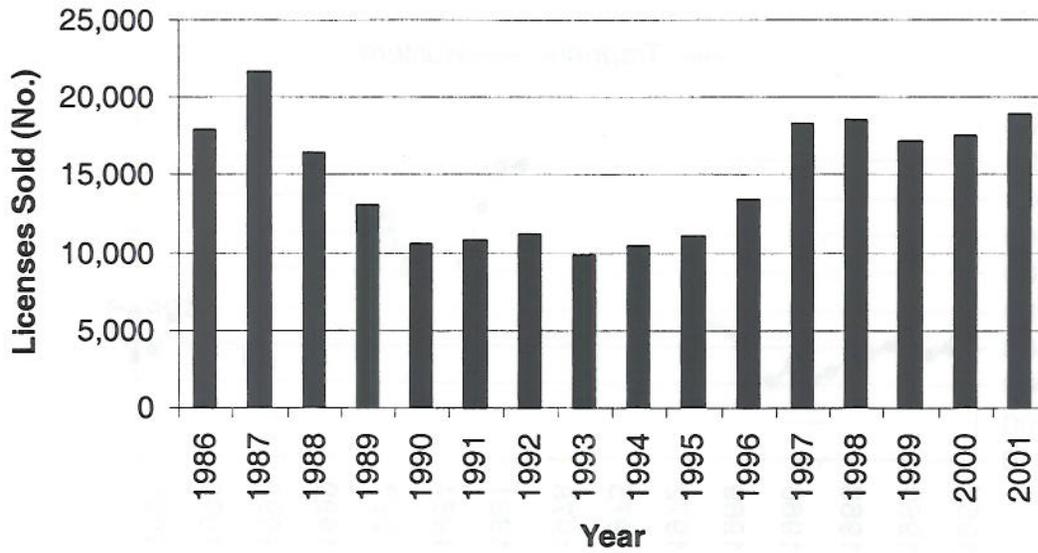


Figure 2. Number of fur harvester licenses sold in Michigan, 1986-2001. Fur harvester licenses included Resident Fur Harvester, Senior Fur Harvester, Junior Fur Harvester, Military Fur Harvester, and Nonresident Fur Harvester licenses. During 1996-2001, totals also included Resident Fur Harvester (trap only) and Junior Fur Harvester (trap only) licenses.

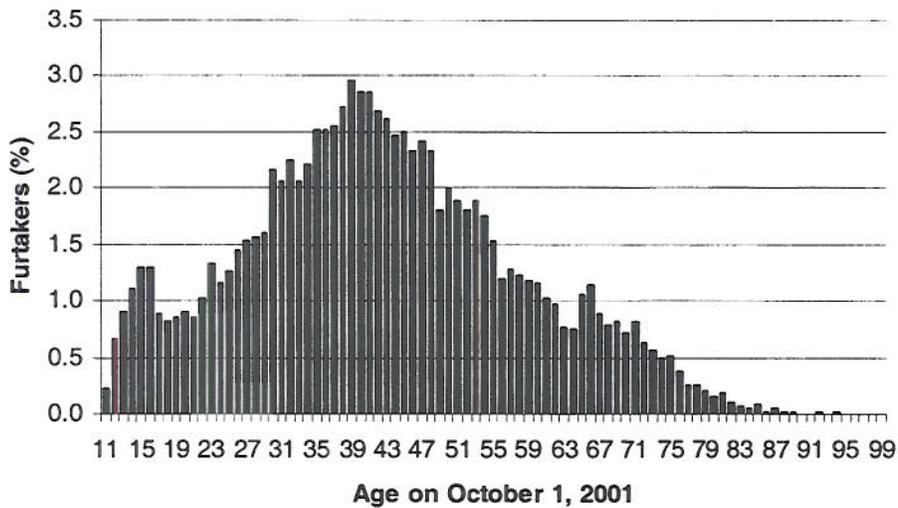


Figure 3. Age of people that purchased a license to hunt or trap furbearers in Michigan for the 2001 hunting and trapping seasons (\bar{x} = 42 years).

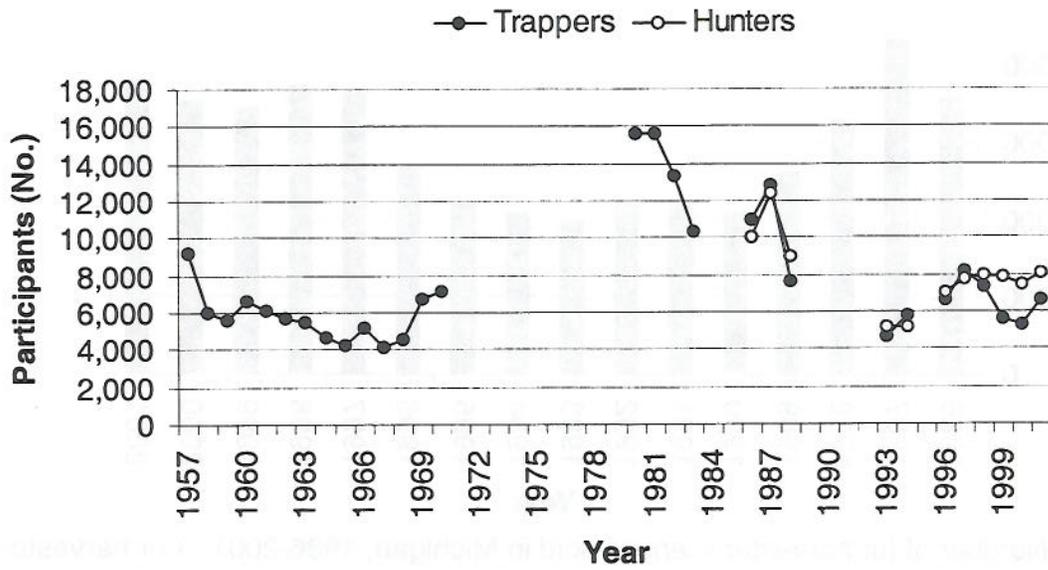


Figure 4. Number of trappers and hunters in Michigan, 1957-2001. Estimates included only license buyers that either trapped or hunted furbearers (any species). Estimates were not available for years when data was missing.

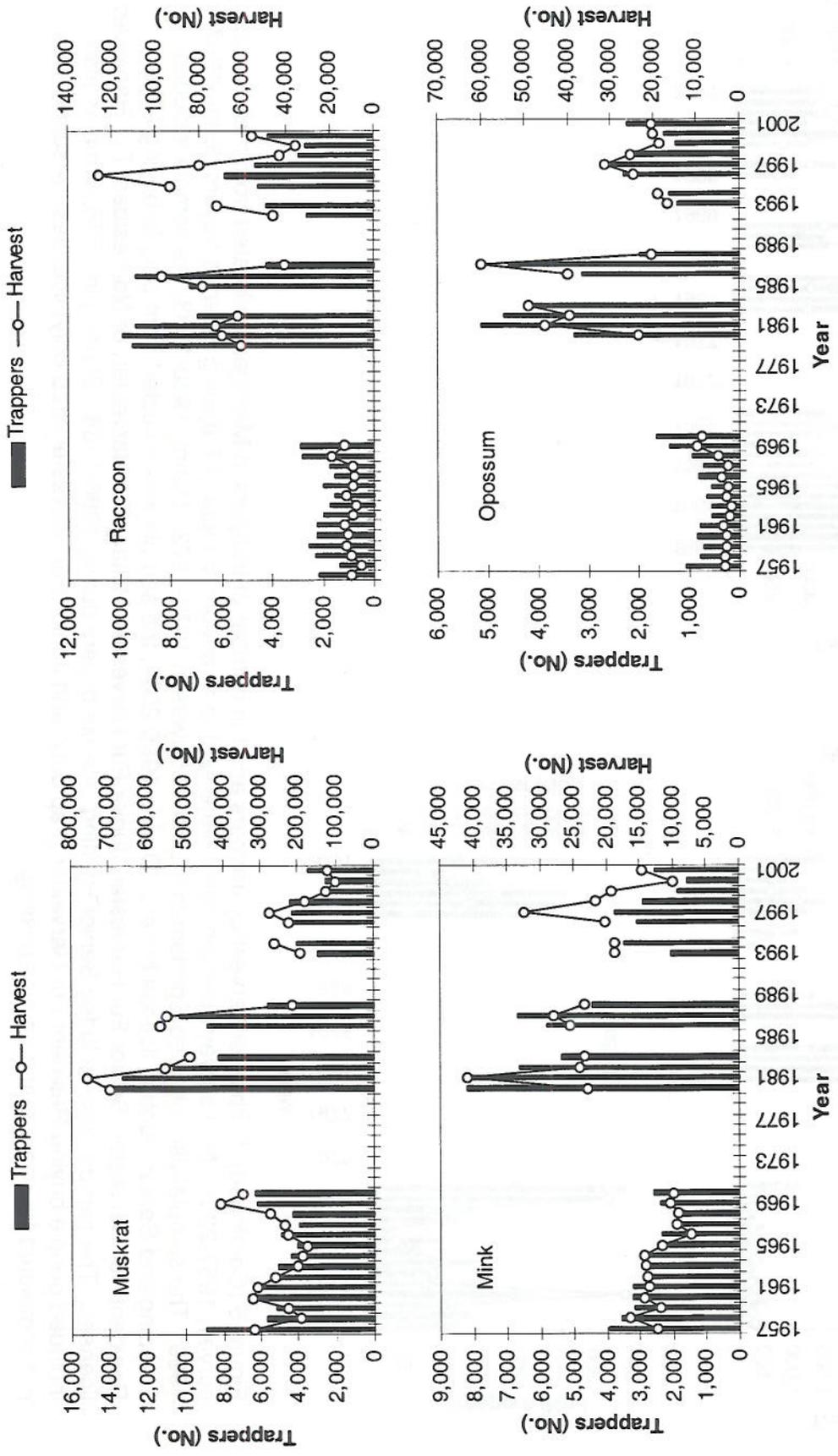


Figure 5. Furbearer harvest by trappers and the number of trappers in Michigan estimated from mail harvest survey, 1957-2001. Mail survey questionnaires were sent to a random sample of Trapping License buyers during 1957-1969. The sample also included Sportsman's License buyers in 1970-1972. During 1980-1983, the sample included Trapping and Senior Hunting license buyers. During 1986-2001, the sample was selected from people buying either Resident Fur Harvester, Senior Fur Harvester, Junior Fur Harvester, Military Fur Harvester, or Nonresident Fur Harvester licenses. The sample also included Senior Hunting License buyers during 1986-1988. Starting in 1996, samples also included people buying Resident Fur Harvester (trap only) and Junior Fur Harvester (trap only) licenses. A survey was not completed for years that data was missing.

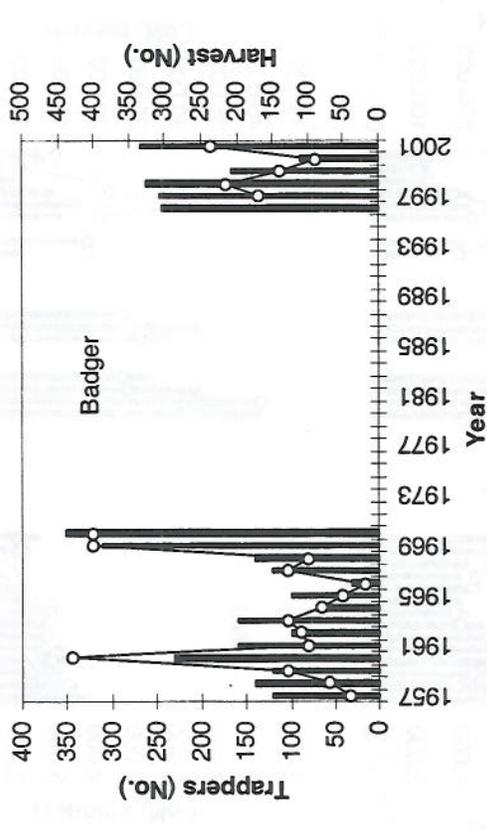
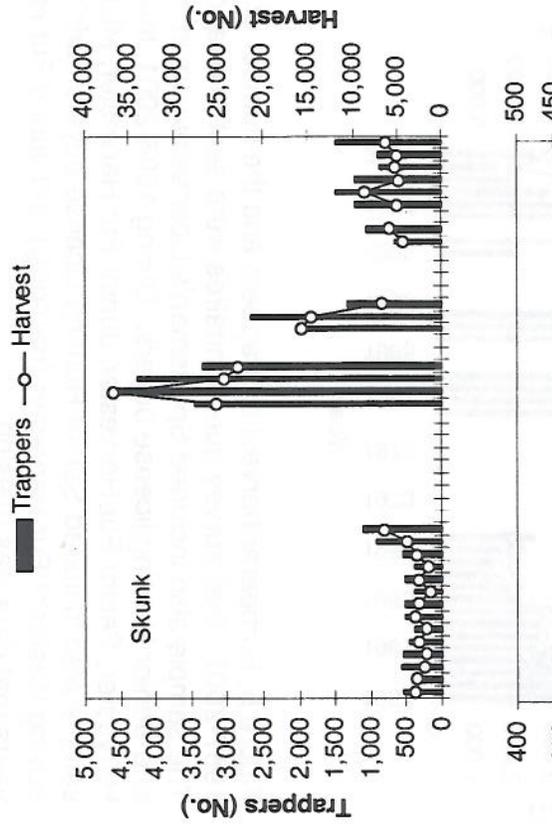
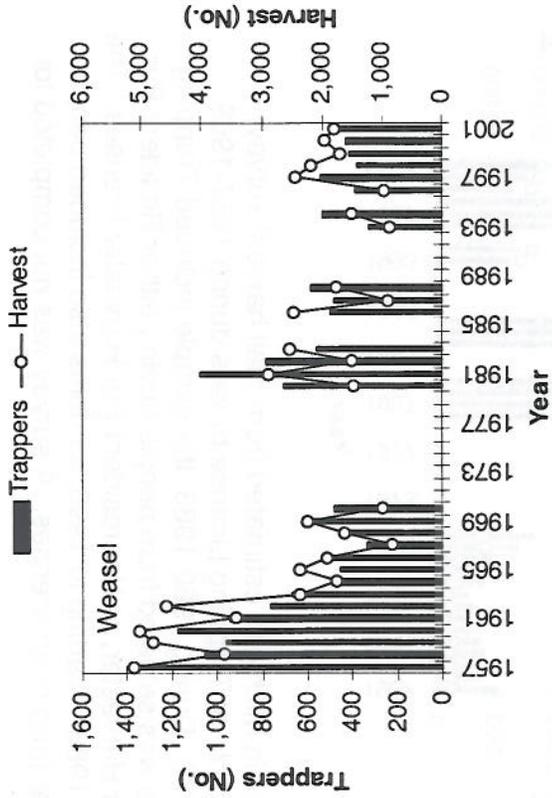


Figure 5 (Continued). Furbearer harvest by trappers and the number of trappers in Michigan estimated from mail harvest survey, 1957-2001. Mail survey questionnaires were sent to a random sample of Trapping License buyers during 1957-1969. The sample also included Sportsman's License buyers in 1970-1972. During 1980-1983, the sample included Trapping and Senior Hunting license buyers. During 1986-2001, the sample was selected from people buying either Resident Fur Harvester, Senior Fur Harvester, Junior Fur Harvester, Military Fur Harvester, or Nonresident Fur Harvester licenses. The sample also included Senior Hunting License buyers during 1986-1988. Starting in 1996, samples also included people buying Resident Fur Harvester (trap only) and Junior Fur Harvester (trap only) licenses. A survey was not completed for years that data was missing.

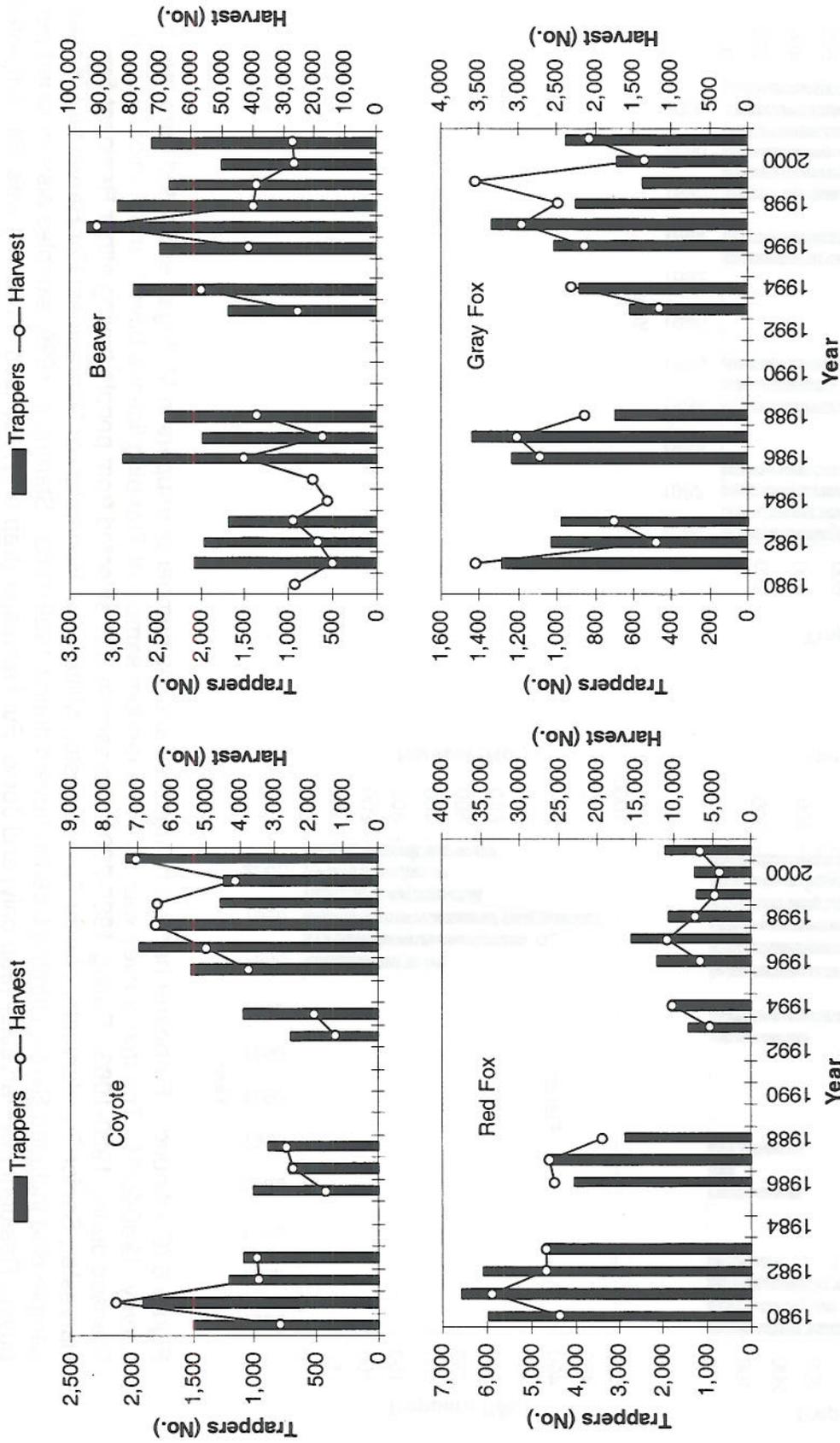


Figure 6. Furbearer harvest by trappers and the number of trappers in Michigan estimated from mail harvest survey, 1980-2001. The mail survey was sent to a random sample of Trapping license buyers and Senior Hunting licenses during 1980-1983. During 1986-2001, the sample was selected from people buying either Resident Fur Harvester, Senior Fur Harvester, Junior Fur Harvester, Military Fur Harvester, or Nonresident Fur Harvester licenses. The sample also included Senior Hunting License buyers during 1986-1988. Starting in 1996, samples also included people buying Resident Fur Harvester (trap only) and Junior Fur Harvester (trap only) licenses. A survey was not completed for years that data was missing.

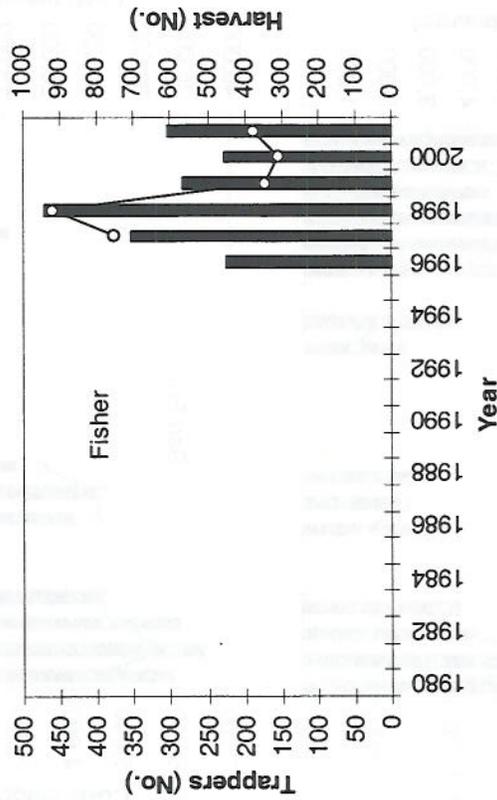
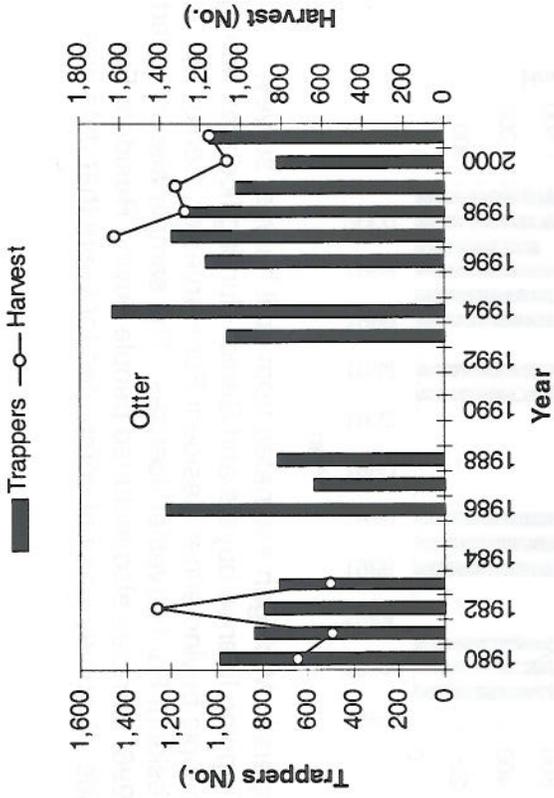
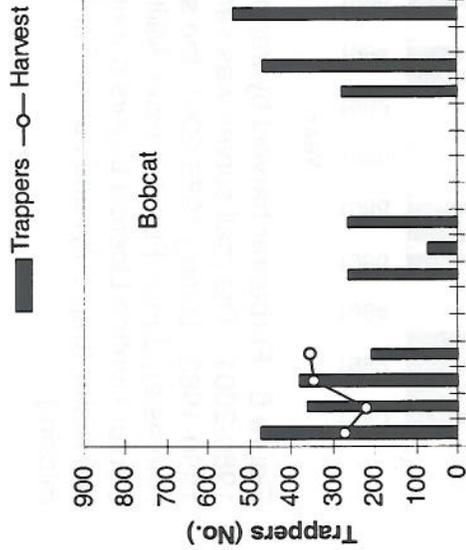


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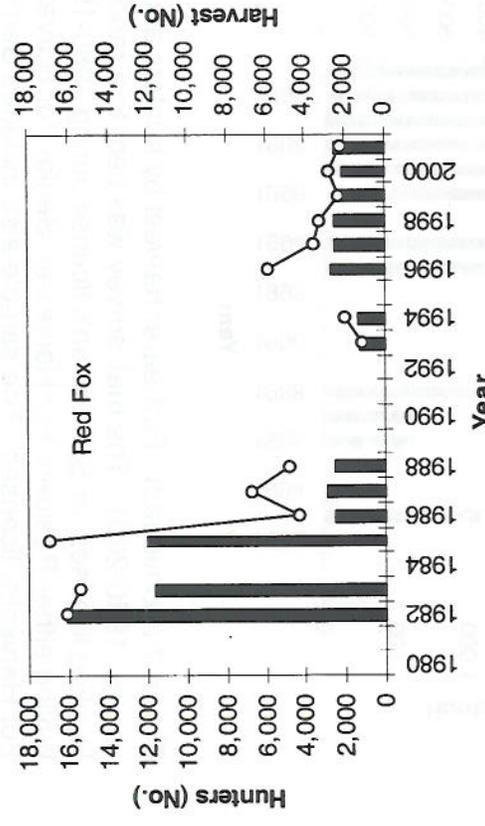
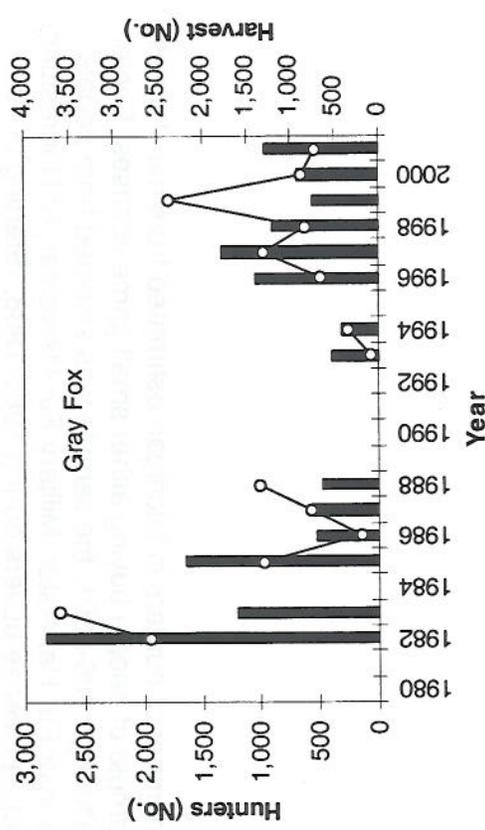
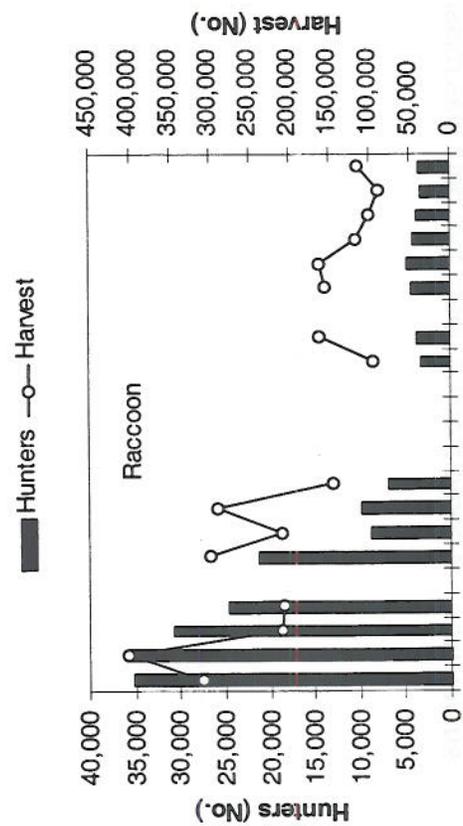
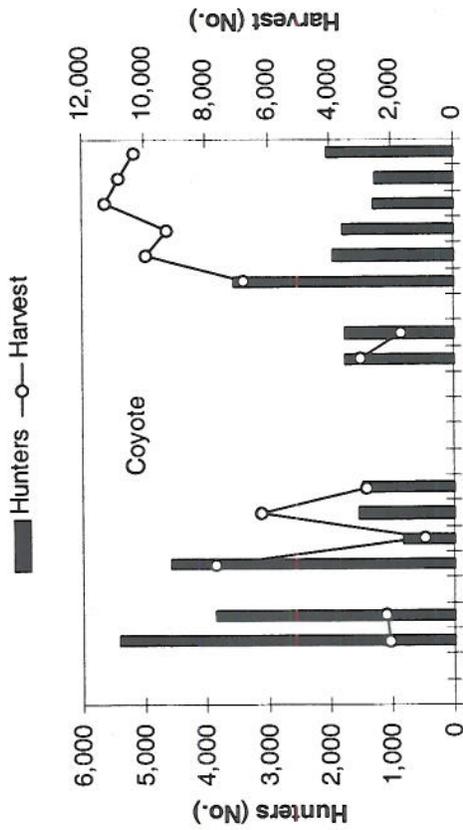


Figure 7. Furbearer harvest by hunters and the number of hunters in Michigan estimated from mail harvest survey, 1980-2001. The mail survey was sent to a random sample of people buying either small game licenses, Senior Hunting licenses, or Sportsman's license during 1980-1985. During 1986-2001, the sample was selected from people buying either Resident Fur Harvester, Senior Fur Harvester, Junior Fur Harvester, Military Fur Harvester, or Nonresident Fur Harvester licenses. The sample also included Senior Fur Hunting License buyers during 1986-1988. Starting in 1996, survey also included people buying Resident Fur Harvester (trap only) and Junior Fur Harvester (trap only) licenses. A survey was not completed for years that data was missing.

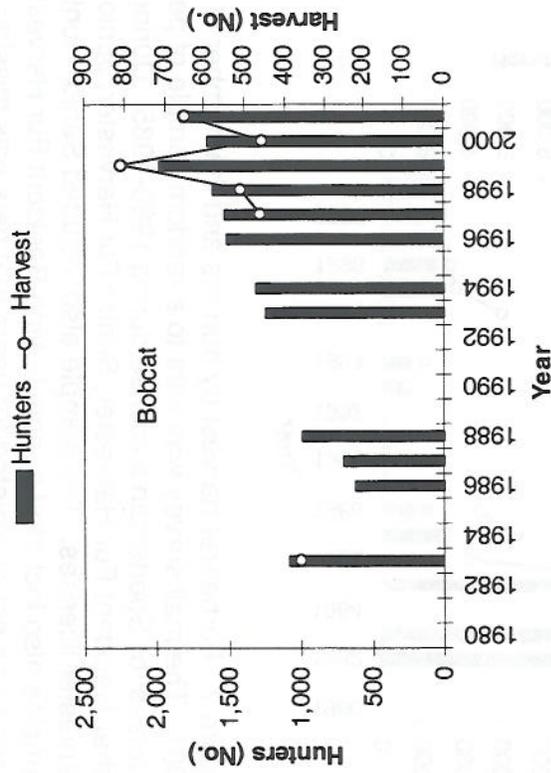


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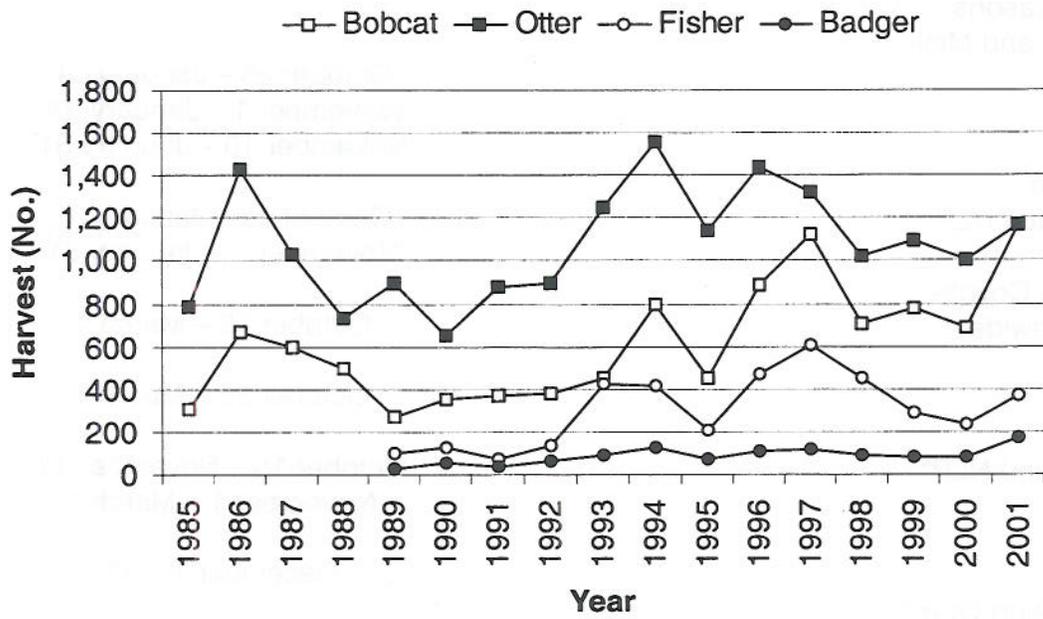


Figure 8. Number of bobcat, otter, fisher, and badger registered by furtakers in Michigan, 1985-2001. Badger and fisher seasons were established in 1989. Totals for 2001 were preliminary.

Table 1. Trapping and hunting seasons when furbearing animals could be harvested in Michigan during 2001-2002 seasons.^a

Season, species, and area	Season dates
Trapping seasons	
Muskrat and Mink	
UP	October 25 – January 31
NLP	November 1 – January 31
SLP	November 10 – January 31
Raccoon	
UP and NLP	October 15 – January 31
SLP	November 1 – January 31
Fox and Coyote	
Statewide	October 15 – March 1
Bobcat	
UP	October 25 – March 1
Badger	
UP and NLP ^b	October 15 – November 14
SLP	November 1 – March 1
Fisher	
UP	December 1 – 11
Beaver and Otter ^c	
UP	October 25 – April 14
NLP	November 1 – April 14
SLP	December 1 – March 31
Marten	
UP	December 1 – 11
Hunting seasons	
Bobcat	
UP	December 1 – March 1
NLP (northern portion)	January 1 – March 1
NLP (southern portion)	January 15 – February 16
Fox	
Statewide	October 15 – March 1
Raccoon	
Statewide	October 1 – January 31
Coyote	
Statewide ^d	July 15 – April 15

^aNo closed season for opossum, weasel, and skunk.

^bArea open to badger trapping was expanded to include the UP in 2001.

^cResident seasons.

^dSeason closed during firearm deer season in the UP.

Table 2. Number of fur harvester licenses sold and people receiving and returning harvest questionnaire, 1998-2001.

Item	Year			
	1998	1999	2000	2001
Number of licenses sold	18,520	17,169	17,519	19,082
Number of people buying a license ^a	18,310	16,991	17,339	18,874
People that were mailed a questionnaire (No.)	1,043	3,100	3,100	3,100
Non-deliverable questionnaires (No.)	29	43	52	69
People that did not return questionnaire (No.)	237	589	694	657
Questionnaires returned (No.)	777	2,468	2,354	2,374
Questionnaires returned (%) ^b	77	81	77	78

^aA person was counted only once, regardless of how many licenses they purchased. License types included Fur Harvester, Junior Fur Harvester, Senior Fur Harvester, Non-resident Fur Harvester, Military Fur Harvester, Resident Fur (trap only), and Junior Fur (trap only).

^bResponse rate adjusted to exclude non-deliverable questionnaires.

Table 3. Number of fur harvester license buyers that trapped or hunted furbearers in Michigan, 1998-2001.

Participants	1998		1999		2000		2001	
	No.	95% CL						
Trappers								
Number	7,305	617	5,617	292	5,318	300	6,594	337
%	40	3	33	2	31	2	35	2
Hunters								
Number	7,965	625	7,903	309	7,403	322	8,034	347
%	44	3	47	2	43	2	43	2
Combined^a								
Number	12,630	583	11,187	294	10,739	316	12,086	341
%	69	3	66	2	62	2	64	2

^aA person was counted only once, although they may have both trapped and hunted furbearers.

Table 4. Number of participants, harvest, and days afield (effort) during Michigan furbearer seasons, 2000 and 2001.

Species and season	Participants (No.)			Harvest (No.)			Days afield (No.)			
	Year		95%	Year		95%	Year		95%	
	2000	2001	CL ^a	2000	2001	CL ^a	2000	2001	CL ^a	
Trapping										
Mink	1,547	2,542	242	9,867	14,593	4,344	38,407	63,069	9,349	64%
Raccoon	2,644	4,140	294	35,843	55,637	8,335	56,810	92,597	10,413	63%
Opossum	1,488	2,210	227	19,966	20,431	3,854	37,173	56,229	9,072	51%
Skunk	877	1,466	190	4,874	6,203	1,418	23,052	35,802	7,542	55%
Weasel	427	483	111	1,952	1,792	977	10,315	11,095	4,887	8%
Red fox	1,267	1,945	216	4,132	6,494	1,947	29,586	47,344	8,173	60%
Gray fox	685	952	155	1,354	2,073	620	16,810	23,390	5,938	39%
Coyote	1,245	2,033	220	4,122	7,068	1,707	30,266	52,767	8,353	74%
Bobcat ^a	457	620	123	376	746	212	10,937	11,730	3,212	7%
Beaver	1,746	2,558	238	26,524	27,372	5,946	46,008	57,165	9,830	24%
Muskrat	2,475	3,409	273	99,474	120,201	22,390	61,455	82,997	10,501	35%
Otter ^a	729	1,023	156	1,063	1,157	231	21,401	26,864	10,016	26%
Fisher ^a	228	304	88	309	379	149	1,971	2,173	733	10%
Badger ^a	88	267	83	89	236	78	1,458	3,866	1,856	165%
Hunting										
Raccoon	3,248	3,413	270	89,037	113,789	22,924	78,768	75,118	10,392	-5%
Red fox	2,151	2,463	238	2,763	2,178	738	28,827	30,882	6,668	7%
Gray fox	950	1,016	160	858	708	417	12,576	13,343	5,526	6%
Coyote	4,471	5,271	317	10,808	10,349	2,167	63,812	72,203	9,248	13%
Bobcat ^a	1,643	1,827	206	457	649	176	15,036	15,216	2,992	1%
Trapping and hunting combined										
Raccoon	5,348	6,806	340	124,879	169,426	24,675	135,578	167,715	14,676	24%
Red fox	3,234	4,161	294	6,895	8,672	2,123	58,413	78,226	10,939	34%
Gray fox	1,547	1,905	213	2,212	2,781	902	29,386	36,732	8,547	25%
Coyote	5,340	6,780	340	14,931	17,417	2,886	94,078	124,970	12,701	33%
Bobcat ^a	2,040	2,366	229	833	1,395	271	25,973	26,946	4,415	4%

^a95% CL for the 2001 estimate.

Table 5. Number of bobcat, otter, fisher, badger and marten registered by furtakers in Michigan, 1985-2001.

Year	Species						
	Bobcat (by method of capture)			Otter	Fisher ^a	Badger ^a	Marten ^b
	Hunting	Trapping	Unknown				
1985	193	100	14	791			
1986	268	390	11	1,431			
1987	315	277	5	1,030			
1988	327	170	0	731			
1989	178	91	0	896	99	28	
1990	266	85	0	654	125	52	
1991	292	79	0	878	68	35	
1992	276	104	0	896	140	63	
1993	285	163	0	1,251	425	90	
1994	373	422	0	1,552	417	124	
1995	311	138	1	1,137	208	75	
1996	463	420	0	1,438	471	109	
1997	347	771	0	1,323	609	117	
1998	331	375	0	1,026	455	91	
1999	434	343	0	1,097	291	81	
2000	379	307	0	1,006	236	85	85
2001 ^c	439	724	0	1,165	375	171	97

^aBadger and fisher seasons were established in 1989.

^bMarten season was established in 2000.

^cPreliminary totals.

