



2017 BOBCAT HUNTER AND TRAPPER HARVEST IN MICHIGAN

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ABSTRACT

A survey was completed to determine the number of people hunting and trapping bobcats in Michigan, the number of days spent afield (effort), and the number of bobcats registered. In 2017, 9,004 people obtained a bobcat harvest tag for the hunting and trapping seasons (20% increase from 2016). About 33% (2,956) of these tag-holders attempted to hunt or trap bobcats, and 16% of these furtakers (hunters and trappers combined) registered at least one bobcat. An estimated 2,058 people attempted to hunt bobcats, and they spent 16,248 days hunting and registered 298 bobcats. About 1,185 people attempted to trap bobcats and spent 13,196 days trapping and registered 229 bobcats. The number of furtakers increased significantly by 10% between 2016 and 2017. This increase was primarily driven by an increased number of hunters. The estimated effort per registered bobcat in 2017 was not significantly different from 2016 for hunters but decreased significantly for trappers. The amount of effort per bobcat registered was a measure of how difficult it was to capture a bobcat and may be an indirect measure of the abundance of bobcats. Similar estimates among hunters during the last two years suggested that bobcat numbers were similar in both 2016 and 2017; however, the decreased effort required to take a bobcat among trappers suggested conditions changed. Other population indices measured for trappers (i.e., proportion of trappers that released a bobcat and the proportion of trappers that caught an incidental bobcat) did not change significantly between 2016 and 2017; thus, the change in effort per registered bobcat by trappers may not accurately reflect an increase in bobcat numbers.



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INTRODUCTION

The Natural Resources Commission (NRC) and the Michigan Department of Natural Resources (DNR) 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 to accomplish this statutory responsibility. Estimating hunter and trapper participation, harvest, and days afield (effort) are the primary objectives of these surveys. Estimates derived from harvest surveys, as well as information from mandatory registration reports, field surveys, and population modeling are used to monitor bobcat (*Lynx rufus*) populations and establish harvest regulations.

During 2017, bobcats could be harvested during both hunting and trapping seasons in six management units (Tables 1 and 2). The dates of the hunting and trapping seasons were the same as in 2016. In order to hunt or trap bobcats, resident furtakers were required to obtain a free bobcat harvest tag, in addition to a fur harvester license. Nonresidents were not permitted to harvest bobcat. Bobcat harvest tags were only available from May 1 through November 30 (i.e., before the start of the earliest bobcat season). The total statewide bag limit was 2 bobcats per furtaker regardless of method of take. In the Upper Peninsula (UP), except Drummond Island, furtakers could legally take and register two bobcats in the hunting and trapping seasons combined. Only one bobcat could be taken from Drummond Island (Unit B), and only one bobcat could be legally taken and registered from all Lower Peninsula (LP) units combined (Figure 1). Successful furtakers were required to immediately attach their harvest tag to the bobcat and were required to register bobcats within 10 days of the end of the season in which the bobcat was taken. Furtakers were not allowed to keep bobcats that were beyond the legal limit of bobcats per person or bobcats taken outside the area open for harvest (incidental catches). Furtakers were required to bring incidental catches to a registration station if they could not be released alive. Although all furtakers harvesting a bobcat were required to present their animals at a DNR office for registration, this survey does not present the information collected from registered bobcats.

In 2017, hunting and trapping was allowed on both public and private lands in all open management units. Trappers could use body-gripping (e.g., conibear) traps, foothold traps, and live restraining cage traps to capture bobcats in the UP but only foothold traps in the LP.

METHODS

A questionnaire (Appendix A) was sent to 5,000 randomly selected people who obtained a bobcat harvest tag in 2017 (9,004 tag holders). Furtakers receiving the questionnaire reported whether they attempted to hunt or trap a bobcat, number of days spent afield, and number of bobcats they registered. Hunters were also asked to report their hunting method (e.g., dogs, calls) and the number of bobcats that were within range to take but they chose not to harvest. Hunters that used dogs were asked to report who owned the dogs, number of occasions the dogs chased a bobcat, and whether they hired a guide. Trappers were asked to report the number of bobcats caught in traps and the number of bobcats released alive. Trappers also were asked to report the types of traps used, their preferred trap type, and whether they caught any bobcats in a trap set for another animal during the open seasons for taking bobcats. All furtakers were asked the ownership of lands where they pursued bobcats and

their opinion of the status of the bobcat population in the county where they preferred to hunt or trap.

Questionnaires were mailed initially during late March 2018, and nonrespondents were mailed up to two follow-up questionnaires. Although 5,000 people were sent a questionnaire, 84 questionnaires were undeliverable, resulting in an adjusted sample size of 4,916. Questionnaires were returned by 2,629 people, yielding a 53% adjusted response rate.

To extrapolate from the tag holders that completed their questionnaire to all people obtaining harvest tags, estimates were calculated using a simple random sampling design (Cochran 1977). The 95% confidence limit (CL) was also calculated for all estimates. This 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 the true value would be within this interval 95 times out of 100. Estimates were not adjusted for possible response or nonresponse bias. The 95% CL for ratio estimates (i.e., mean days of effort required per registered bobcat) were calculated using the Taylor series linearization method (survey package in R, Lumley 2004).

Statistical tests are used routinely to determine the likelihood that the differences among estimates are larger than expected by chance alone. The overlap of the 95% confidence intervals was used to determine whether estimates differed significantly. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 95 out of 100 times ($P < 0.05$), if the study had been repeated (Payton et al. 2003).

RESULTS

Hunting and Trapping Combined

In 2017, 9,004 people obtained a bobcat harvest tag for the bobcat hunting and trapping seasons, which was 20% greater than in 2016 (7,480 people obtained a tag in 2016). About $33 \pm 2\%$ (2,956) of these tag holders attempted to hunt or trap bobcats (Table 3). Furthermore, about $3 \pm 1\%$ (288 ± 51) of the tag holders attempted both hunting and trapping bobcats. Among the 2,956 tag holders that attempted to take a bobcat, 60% only hunted, 30% only trapped, and 10% both hunted and trapped (Figure 2).

Furtakers spent 29,444 days afield ($\bar{x} = 10.0 \pm 0.7$ days/furtaker) and registered 527 bobcats ($\bar{x} = 0.18 \pm 0.02$ bobcats/furtaker). Furtakers spent about 12,080 days afield pursuing bobcats in the UP and 17,203 days in the LP (Table 3). About 16% of the furtakers registered at least one bobcat (Table 4). Nearly $15 \pm 2\%$ of the furtakers registered only one bobcat and about 1% registered two bobcats. About 17% of the furtakers in the UP registered at least one bobcat (Table 4). Nearly $12 \pm 4\%$ of the UP furtakers registered only one bobcat and $5 \pm 2\%$ registered two bobcats. An estimated 16% of furtakers in the LP registered a bobcat.

The number of furtakers seeking bobcats statewide increased declined significantly by 9%, and the number of days devoted to taking a bobcat declined significantly by 10% between 2016 and 2017 (Table 3, Figure 3). Regionally, furtaker numbers and their effort increased

significantly in the LP but were unchanged in the UP. The number of bobcats registered statewide was not significantly different between 2016 and 2017; however, the number of bobcat registered in the LP increased significantly by 52% but was unchanged in the UP (Table 4). The proportion of furtakers registering a bobcat was not significantly different statewide and in both the UP or the LP between 2016 and 2017.

Counties with 130 or more furtakers that pursued bobcats included Newaygo, Alcona, Montmorency, Osceola, and Mecosta (Table 5). Counties with 25 or more registered bobcats taken within that county included Montmorency, Delta, Alcona, Osceola, and Chippewa.

About $27 \pm 1\%$ of furtakers reported the bobcat population was stable in the county where they preferred to hunt or trap bobcats, which was similar to the 2016 estimate (Figures 4-6). About $13 \pm 1\%$ reported bobcat numbers were improving but $7 \pm 1\%$ reported fewer bobcats. Nearly $45 \pm 2\%$ of the furtakers were uncertain of the status of bobcats.

Hunting

About $23 \pm 1\%$ (2,058 hunters) of the tag-holders attempted to hunt bobcats during the 2017 seasons (Table 6). About 373 people hunted in the UP and 1,692 hunted in the LP. The hunters statewide had hunted bobcats an average of 8.6 years (± 0.8 year). About $53 \pm 3\%$ of bobcat hunters hunted bobcats on their own land or land owned by their family, while $39 \pm 3\%$ of the hunters hunted on private land not owned by themselves or their family. About $51 \pm 3\%$ of bobcat hunters hunted on public land. Nearly $21 \pm 3\%$ of the hunters hunted on public land only, $49 \pm 3\%$ hunted on private land only, and $30 \pm 3\%$ hunted on both public and private lands.

Hunters spent about 16,248 days afield hunting bobcats ($\bar{x} = 7.9 \pm 0.8$ days/hunter) and registered an estimated 298 bobcats ($\bar{x} = 0.14 \pm 0.02$ bobcats/hunter, Table 7). Hunters spent about 3,767 days afield hunting bobcats in the UP and 12,330 days hunting bobcats in the LP. The estimated number of days of effort per bobcat registered by hunters statewide was 54.5 days in 2017 (Table 8).

Hunters registered about 56% of the bobcats registered by furtakers (Figure 7). About 14% of the bobcat hunters statewide harvested at least one bobcat (Table 7). Nearly $13 \pm 2\%$ of hunters registered only one bobcat and 1% registered two bobcats. An estimated 10% of the hunters in the UP registered at least one bobcat; $8 \pm 4\%$ of UP hunters registered one bobcat and $2 \pm 2\%$ registered two bobcats. An estimated 15% of hunters in the LP registered a bobcat.

Counties with 95 or more hunters pursuing bobcats included Alcona, Montmorency, Osceola, Mecosta, and Newaygo (Table 9). Counties with at least 20 hunter-registered bobcats originating from that county included Montmorency, Alcona, Osceola, and Cheboygan.

The number of hunters statewide increased significantly by 12% between 2016 and 2017 (Table 6). Despite this increase in hunter numbers, hunting effort, the number of times hunters passed up an opportunity to take a bobcat, the number of bobcats registered, and hunter success did not change significantly statewide between 2016 and 2017 (Table 7).

The number of days of effort per bobcat registered by hunters statewide (54.5) was not statistically different from estimates for 2016 (58.2). In addition, hunting effort per bobcat was not significantly different in any of the management units between 2016 and 2017 (Table 8, Figure 8).

Hunters most frequently used calls ($65 \pm 3\%$) or dogs ($30 \pm 3\%$) to hunt bobcats (Table 10). Hunters using calls were responsible for 53% of the days spent hunting bobcats, and hunters using dogs were responsible for 36% of the hunting effort (Figure 9). The estimated number of people hunting bobcats with dogs statewide in 2017 and their hunting effort was not significantly different from 2016 (Table 11). In addition, hunter success, the number of bobcats passed, and the number of bobcats registered by hunters using dogs statewide did not change significantly between 2016 and 2017 (Tables 11 and 12). Among hunters using calls, the estimated number of people hunting bobcats statewide increased significantly by 14% between 2016 and 2017 (Table 13). Despite this increase in hunter numbers, their hunting effort, the number of bobcats passed and the proportion of hunters that registered a bobcat were not significantly different between 2016 and 2017 (Table 14). In addition, the number of bobcats registered by hunters using calls did not change significantly (110 bobcats in 2016 versus 144 bobcats in 2017). Among hunters using calls, less than 1% used a guide service (3 ± 6 hunters).

Bobcat hunters using dogs participated in an estimated $2,675 \pm 590$ chases of bobcats statewide in 2017, which was not significantly different from 2016 (Figure 10). About $28 \pm 3\%$ of the bobcat hunters had an opportunity to harvest a bobcat but chose not to harvest the bobcat, which was not significantly different from 2016. An estimated 575 ± 71 hunters chose not to harvest bobcats on $1,664 \pm 308$ occasions in 2017 (Figure 10). Among those hunters that passed up an opportunity to take a bobcat, $42 \pm 6\%$ passed one bobcat, $23 \pm 5\%$ passed two bobcats, $12 \pm 4\%$ passed three bobcats, $10 \pm 4\%$ passed four bobcats, and $14 \pm 4\%$ passed five or more bobcats. The estimate of the number of bobcats passed by hunters should be viewed cautiously because hunting partners may have reported passing the same bobcat; thus, the estimate will be inflated by an unknown amount. An estimated $14 \pm 4\%$ bobcat hunters that hunted with dogs hired a guide service to assist with their hunting (86 ± 28 hunters).

About $36 \pm 3\%$ of bobcat hunters reported the bobcat population was stable in the county where they preferred to hunt, which was similar to the 2016 estimate (Figures 4-6). About $21 \pm 3\%$ reported bobcat numbers were increasing but $10 \pm 2\%$ reported fewer bobcats. Nearly $26 \pm 3\%$ of bobcat hunters were uncertain of the status of bobcats.

The mean value of bobcat pelts was positively correlated with the number of hunters and their days of effort during 1997-2017 in the UP but not in the LP (Table 15). In addition, pelt prices were significantly correlated with days of effort per registered bobcat in the LP but not in the UP.

Trapping

An estimated $13 \pm 1\%$ (1,185 trappers) of the tag-holders trapped bobcats during the 2017 season (Table 16), and these trappers had trapped bobcats an average of 6.9 years

(± 0.9 year). Most trappers trapped bobcats on private land owned by themselves or their family ($57 \pm 4\%$). About $46 \pm 4\%$ of trappers trapped on private lands not owned by themselves or their family and about $28 \pm 4\%$ trapped on public land. About $71 \pm 4\%$ trapped on private land only, $11 \pm 3\%$ of the trappers trapped on public land only, and $17 \pm 3\%$ trapped on both public and private lands.

Trappers spent about 13,196 days afield trapping bobcats ($\bar{x} = 11.1 \pm 0.9$ days/trapper), caught 418 bobcats, registered 229 bobcats ($\bar{x} = 0.19 \pm 0.04$ bobcats/trapper), and released 188 bobcats from their traps during the 2017 bobcat season (Table 16, Figure 11).

The number of trappers statewide did not change significantly between 2016 and 2017. Additionally, trapping effort, the number of bobcats captured, and the number of bobcats registered by trappers was unchanged (Tables 16 and 17). The proportion of trappers registering a bobcat also did not change significantly between 2016 and 2017 (12% in 2016 versus 17% in 2017, Table 18). The estimated number of days of effort per bobcat registered by trappers statewide in 2017 decreased significantly from 2016 (90.3 days in 2016 versus 57.5 days in 2017; Table 19 and Figure 8). Regionally, trapper numbers and their effort did not change significantly between 2016 and 2017. The number of bobcats captured and the proportions of trappers capturing a bobcat also did not change significantly among regions between years. In addition, the estimated number of days of effort per bobcat registered by trappers in 2017 did not change significantly from 2016 in any region.

Trappers captured about 44% of the bobcats registered by furtakers (Figure 7). About 23% of bobcat trappers captured at least one bobcat and 17% registered at least one bobcat (Table 18). Nearly $15 \pm 3\%$ of the trappers registered one bobcat and $2 \pm 1\%$ registered two bobcats. Nearly $8 \pm 3\%$ of the bobcat trappers released a bobcat that they caught. They released 188 bobcats from their traps, which was not significantly different from the number released in 2016. About $7 \pm 2\%$ of bobcat trappers caught a bobcat in a trap set for another furbearer during the open bobcat seasons (Figure 11).

Counties with 55 or more trappers pursuing bobcats included Newaygo, Menominee, Iron, and Chippewa (Table 20). Chippewa, Delta, Montmorency, and Dickinson were the only counties with more than 10 registered bobcats originating from that county.

Most trappers used foothold traps (85%), while 27% of the trappers used body gripping traps (e.g., conibears) (Table 21). Most trappers preferred to use foothold traps (65%), while 15% preferred to use conibears (Table 22). An estimated 16% of trappers did not have a preferred trap type.

About $38 \pm 4\%$ of bobcat trappers reported the bobcat population was stable in the county where they preferred to trap (Figures 4-6). About $23 \pm 4\%$ reported bobcat numbers were increasing but $9 \pm 3\%$ reported fewer bobcats. Nearly $26 \pm 4\%$ of bobcat trappers were uncertain of the status of bobcats.

The mean value of bobcat pelts was positively correlated with the number of trappers and their days spent afield during 1997-2017 in the UP, but not in the LP (Table 23). In contrast, the mean value of bobcat pelts was not significantly correlated with the number of bobcats registered and effort per bobcat registered in either region.

DISCUSSION

Many factors influence bobcat harvest trends including furtaker numbers, bobcat numbers, harvest regulations, habitat conditions, weather, and fur prices; thus, any interpretations of trends should be viewed cautiously. Moreover, estimates of events that occur infrequently (e.g., harvesting a bobcat) are difficult to estimate precisely using common sampling designs (Cochran 1977). Relatively few furtakers harvest bobcat; thus, estimates from the statewide fur harvesters survey from previous years often have been imprecise (Frawley 2001). Beginning with the 2004-2005 bobcat season, however, all licensed furtakers attempting to harvest a bobcat in Michigan were required to obtain a free bobcat harvest tag from the DNR. Beginning with the 2004 season, the DNR has used these lists of tag holders to design surveys that result in more precise estimates.

Using indices to monitor wildlife populations is a standard practice in wildlife management, and most states use a variety of indices for evaluating furbearer populations. The DNR considers the logistics of data collection, data reliability, ability of the index to detect population change, and cost when selecting an index. Historical, long-term data sets are also valuable for evaluating changes in harvest regulations over time. The DNR uses several indices to monitor the bobcat populations and to recommend changes in bobcat harvest regulations to the NRC. Each of these indices measures an attribute of the bobcat population and independently can be used to monitor changes in population status. Use of multiple indices strengthens the assessment of population status.

Bobcat hunting seasons in the UP were shortened by 31 days (34% reduction) and trapping seasons in the UP were shortened by 65 days (51% reduction) in 2009 (Tables 1 and 2); thus, hunting and trapping effort also declined in 2009 statewide (Figure 3). Since 2009, the number of furtakers participating in bobcat hunting and trapping seasons has generally increased; however, the number of days afield has not changed. During the last two year, the number of furtakers also increased significantly, and this increase was primarily driven by an increased number of hunters.

In 2017, the estimated number of bobcats registered by both hunters and trappers combined was near the lowest recorded during 2003-2017 (Figure 3). In addition, trapper success (i.e., registered at least one bobcat) was near the lowest recorded during 2003-2017.

The estimated effort per registered bobcat in 2017 was not significantly different from 2016 for hunters but declined significantly for trappers (Figure 8). The amount of effort per bobcat registered was a measure of how difficult it was to capture a bobcat and may be an indirect measure of the abundance of bobcats. Similar estimates among hunters during the last two years suggested that bobcat numbers were similar in both 2016 and 2017; however, the decreased effort required to take a bobcat among trappers suggested conditions had changed. Other population indices measured by trappers (i.e., proportion of trappers that released a bobcat and the proportion of trappers that caught an incidental bobcat) did not change significantly between 2016 and 2017; thus, the change in effort per registered bobcat may not be directly related to differences in bobcat numbers.

The number of furtakers pursuing bobcats in the LP was about 2.7 times the number in the UP. In contrast, the number of days afield pursuing bobcats in the LP was only 42% greater than effort in the UP (Table 3).

About 4.5 times more people hunted bobcats in the LP than in the UP in 2017 (Table 6), although the season was shorter in the LP (Table 1). Hunters in the LP spent 3.2 times as many days hunting bobcats than their counterparts in the UP. Hunters in the LP also had more occasions where they chose not to harvest a bobcat than hunters in the UP (Table 7); however, the proportion of hunters registering at least one bobcat was about the same (10% and 15%) in the both the UP and LP.

About 1.3 times more people attempted to trap bobcats in the LP than in the UP in 2016 (Table 16); however, trappers in the UP spent 1.7 times more days trapping bobcats than their counterparts in the LP. Trappers in the UP spent more days trapping bobcats than in the LP because the UP season was longer (Table 2).

Since 2003, the number of bobcats registered by trappers has usually been greater than or equal to the number of bobcats registered by hunters (Figure 3). In 2017, the number of bobcats registered by hunters and trappers was not significantly different (298 bobcats registered by hunters versus 229 registered by trappers). Bobcat hunters devoted an average of 54.5 days of effort per bobcat registered, which was not significantly than the 57.5 days of effort per bobcat registered by trappers.

A higher proportion of hunters that used dogs were successful than hunters using calls, and the difference was significant (18% of hunters using dogs registered a bobcat versus 10% of hunters using calls, Table 10). Hunters using dogs normally have had significantly higher success than hunters using calls in Michigan (Frawley 2017). Lovallo (2011) reported a mean success rate of 39% for hunters using dogs in Pennsylvania during 2000-2008, while the mean success rate for hunters using calls in Pennsylvania was 14%. Kitchell and Olson (2005, 2006, 2007) and Dhuey and Olson (2008, 2009) reported 42-79% ($\bar{x} = 59\%$) of hunters using dogs registered a bobcat in Wisconsin during 2004-2008, while 18-48% ($\bar{x} = 28\%$) of hunters not using dogs registered a bobcat.

About 8.4% of the bobcat trappers in Michigan released a bobcat from their traps set during the 2017 season, which was not significantly different from 2016 (10.6% in 2016, Frawley 2017). In comparison, 6-27% ($\bar{x} = 11\%$) of Wisconsin bobcat trappers released a bobcat from their traps during 2006-2016 in Wisconsin (e.g., Lohr et al. 2016).

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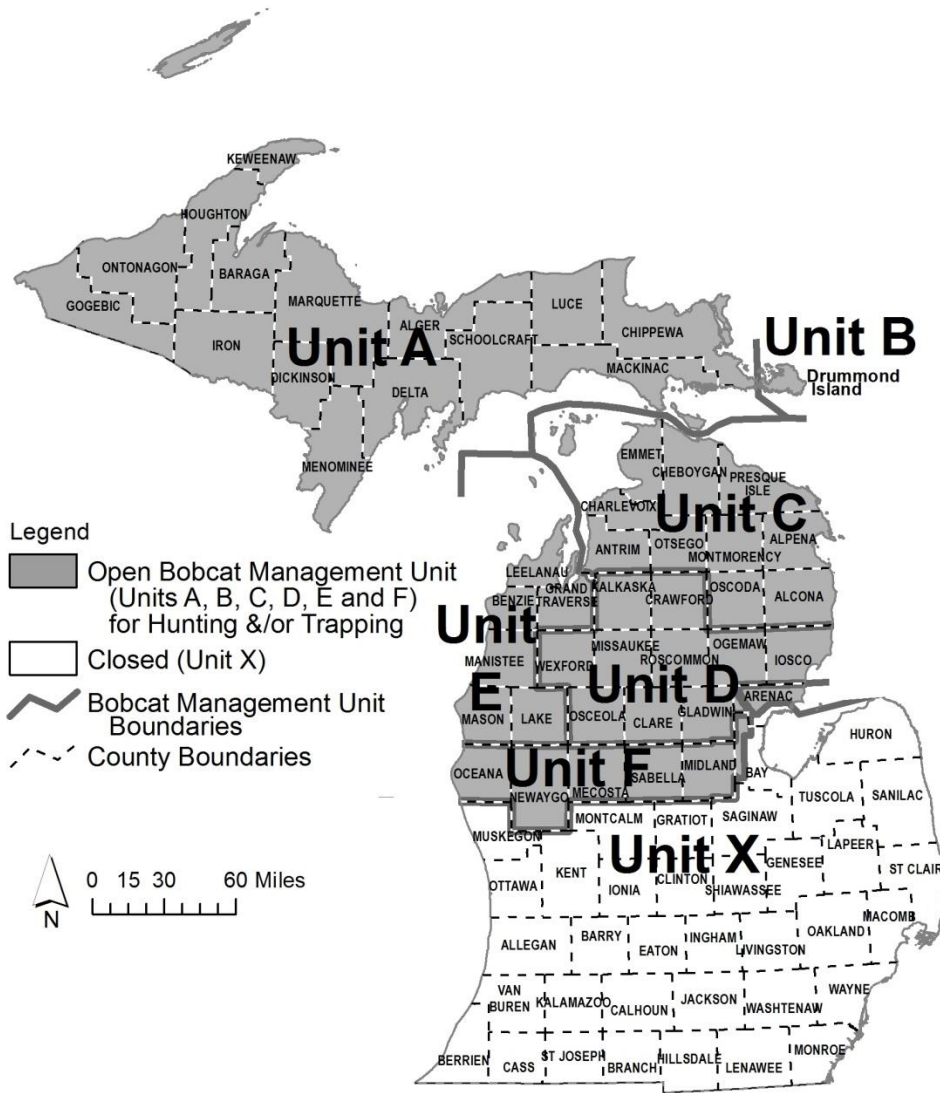


Figure 1. Bobcat Management Units in Michigan for the 2017 hunting and trapping seasons.

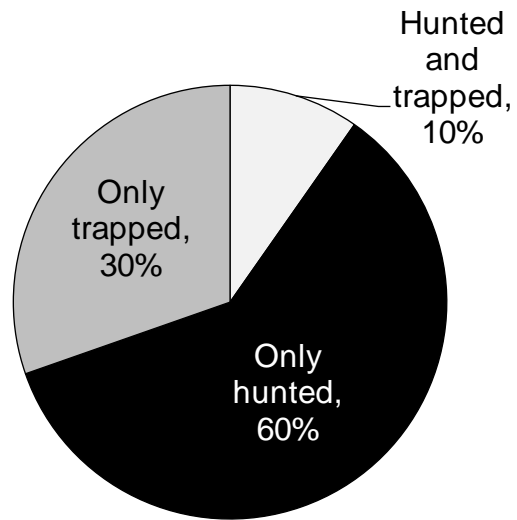
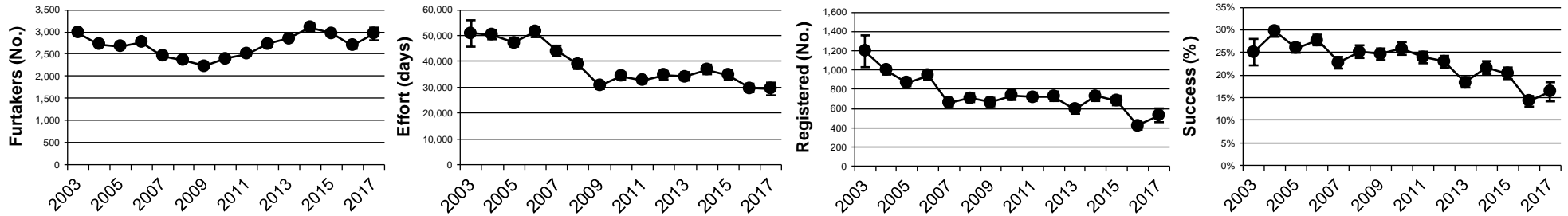
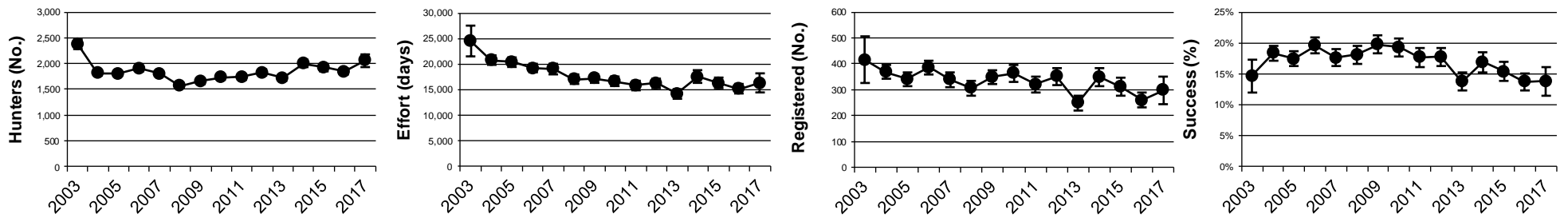


Figure 2. Proportion of active furtakers that attempted to take a bobcat via hunting or trapping methods in Michigan during 2017.

Hunting and trapping combined



Hunting



Trapping

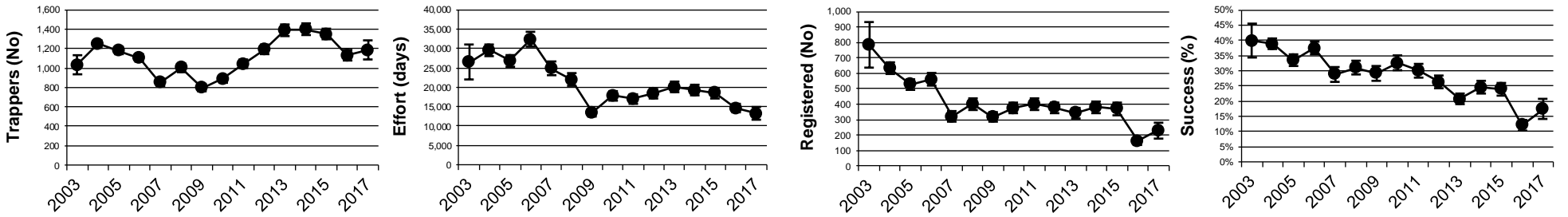


Figure 3. Number of furtakers pursuing bobcats, number of days of effort, number of bobcats registered, and proportion of furtakers registering a bobcat in Michigan during 2003-2017, summarized by method of take. Number of hunters and trappers does not add up to statewide total of hunters and trappers combined because a person could both hunt and trap bobcats. Vertical bars represent the 95% CL.

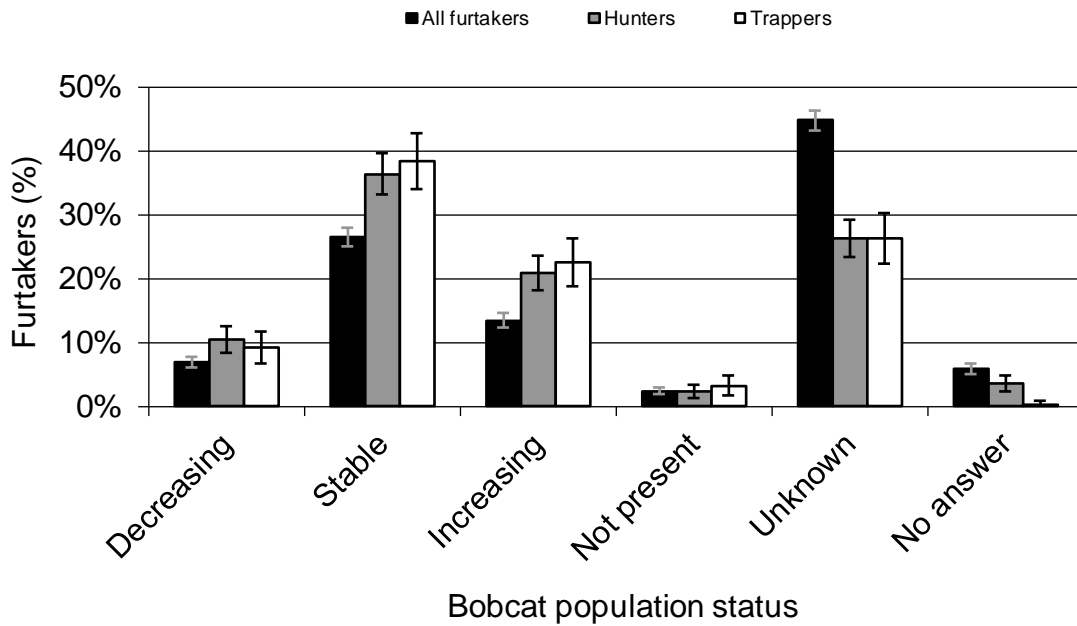


Figure 4. Status of bobcats in Michigan during 2017 as described by bobcat hunters and trappers. Vertical bars represent the 95% CL.

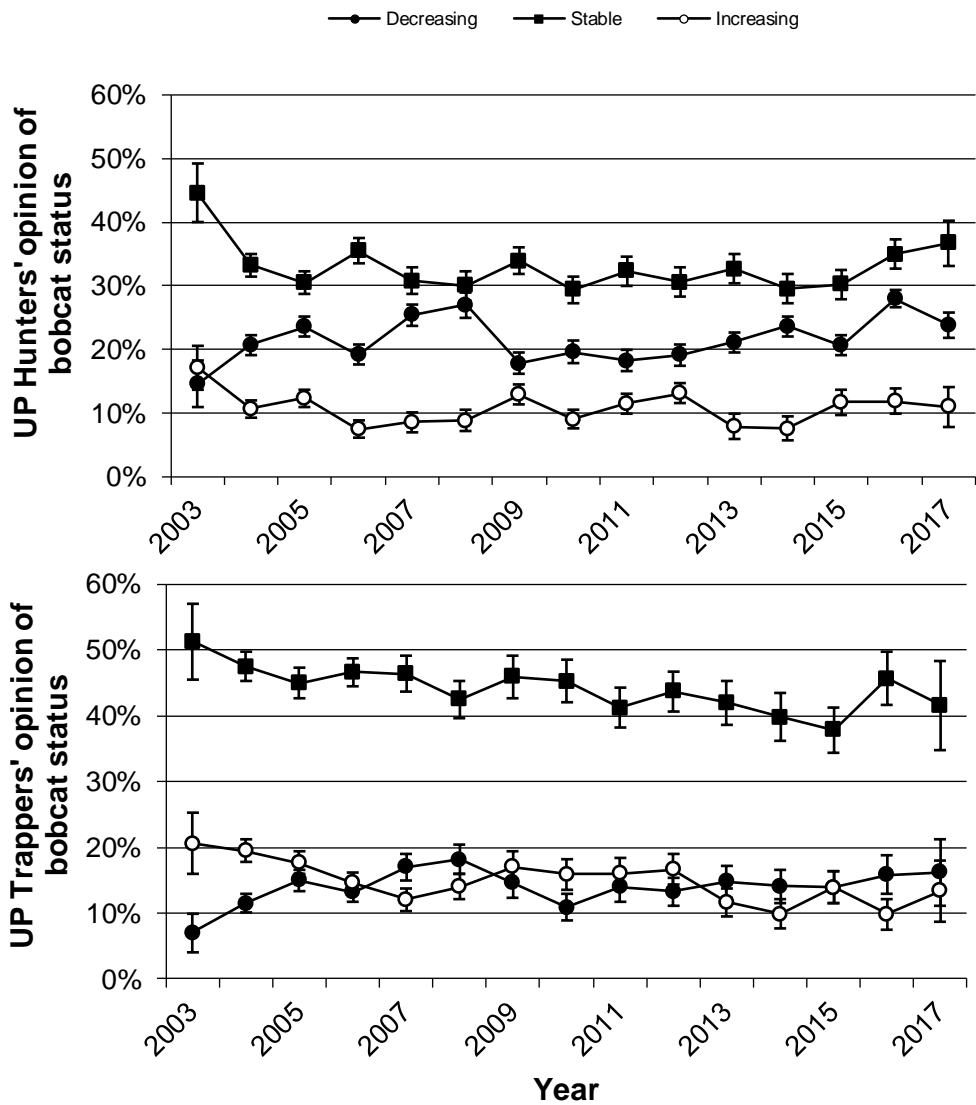


Figure 5. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Upper Peninsula, 2003-2017. Vertical bars represent the 95% CL.

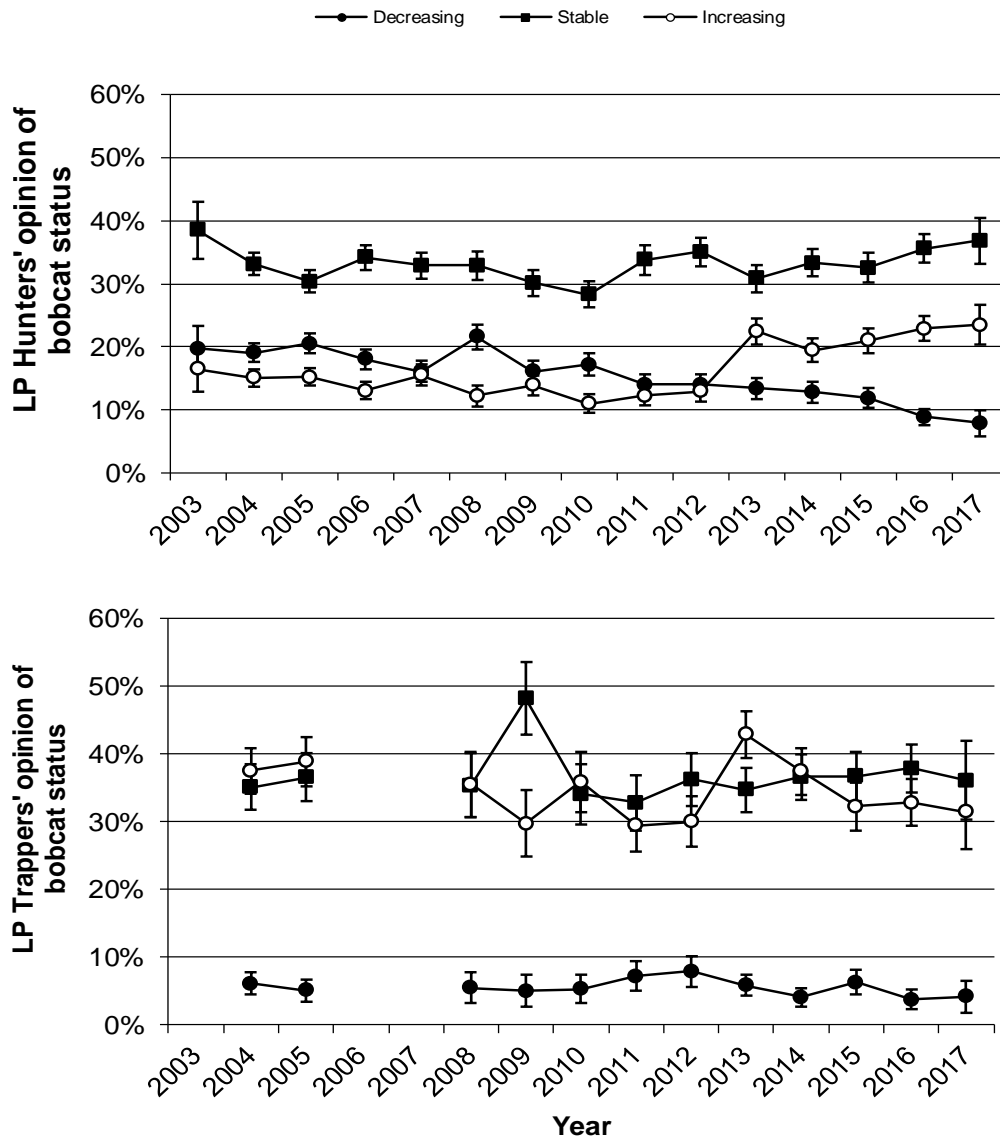


Figure 6. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Lower Peninsula, 2003-2017. Vertical bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2017 only.

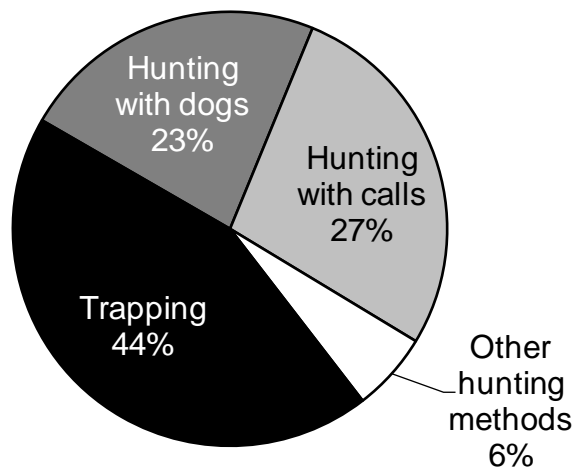


Figure 7. Proportion of bobcats registered in Michigan during 2017, summarized by method of take.

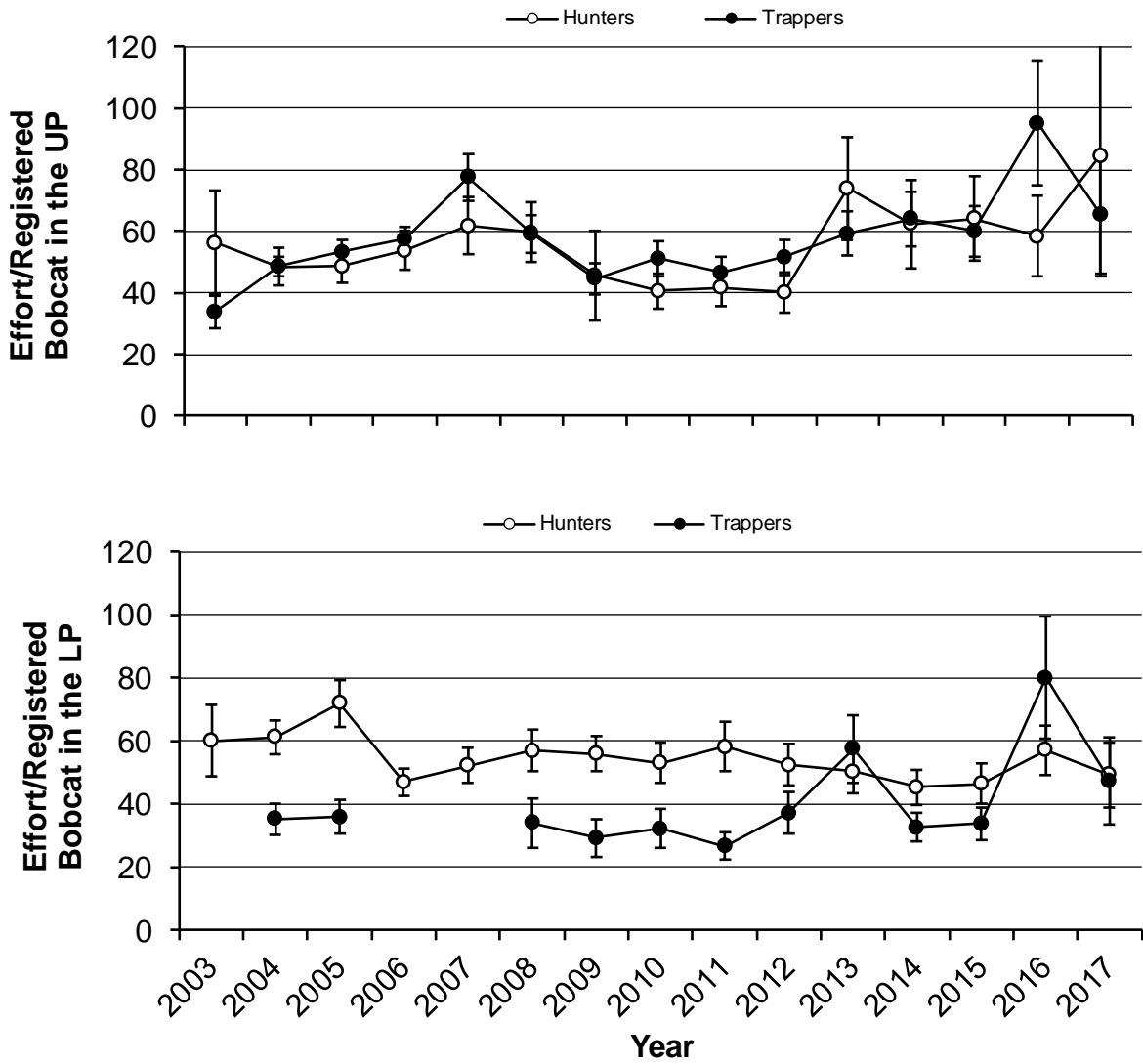


Figure 8. Estimated number of days of effort per bobcat registered in Michigan by hunters and trappers for the 1997-2017 seasons, summarized by region. Vertical error bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2017 only.

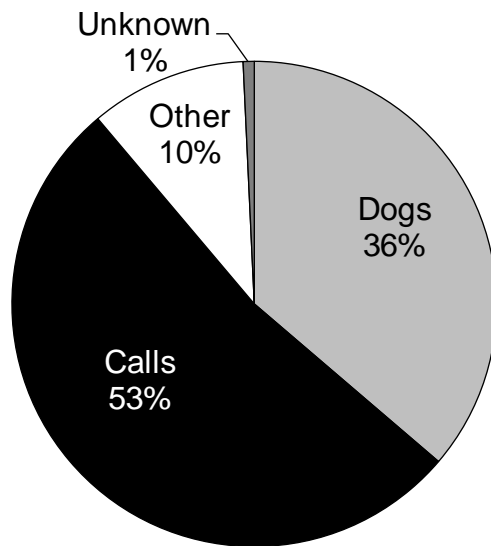


Figure 9. The proportion of hunting effort among the various hunting methods used in Michigan during 2017.

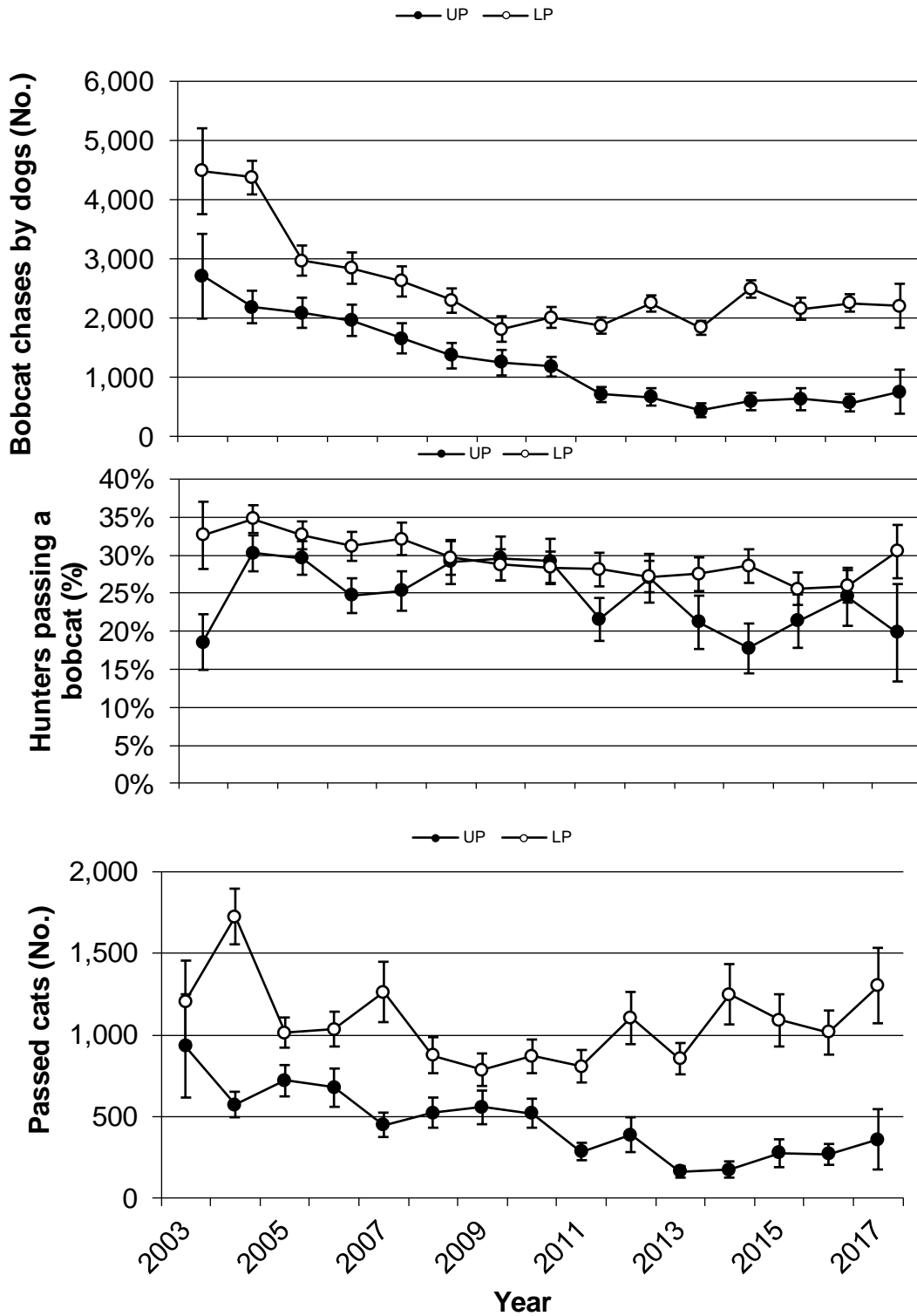


Figure 10. Number of bobcat chases by dogs, proportion of hunters passing a bobcat (bobcats within range or treed but not harvested), and number of bobcats passed by hunters (all types of hunting) in Michigan, 2003-2017. Vertical bars represent the 95% CL.

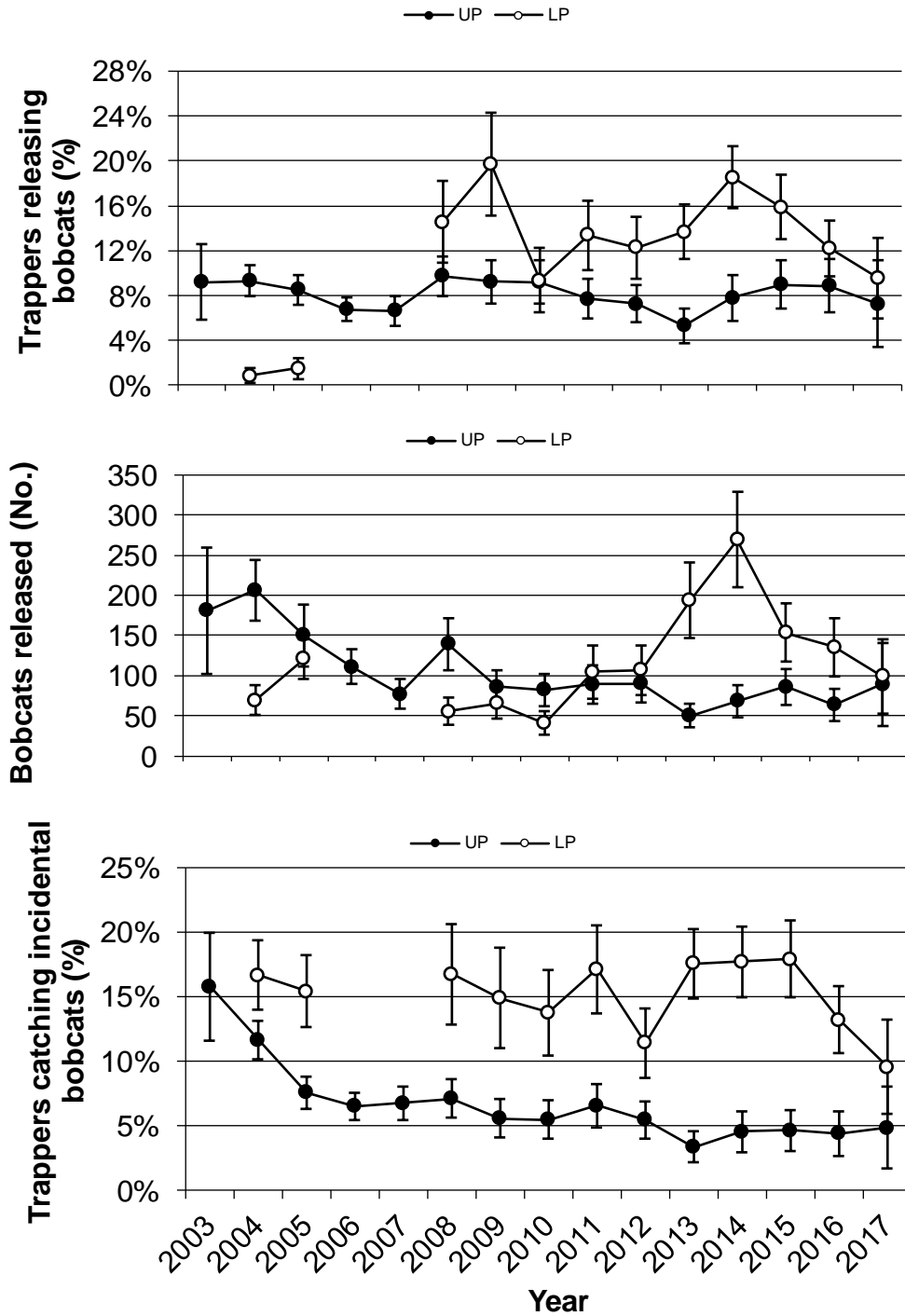


Figure 11. Number of trappers releasing bobcats from their traps, number of bobcats released from traps, and proportion of trappers that caught a bobcat in a trap set for another species (incidental catch) in Michigan, 2003-2017. Trapping of bobcat in the LP was permitted in 2004-2005 and 2008-2017 only. Vertical bars represent the 95% CL.

Table 1. Resident bobcat **hunting** season dates and seasonal bag limits in Michigan, 1989-2017.

Year	State-wide bag limit ^a	Bobcat management unit								
		Upper Peninsula				Lower Peninsula				
		Unit A ^b		Unit B ^c		Unit C ^d	Unit D ^e	Unit E ^f	Unit F ^g	
Season dates	Bag limit ^a	Season dates	Bag limit ^a	Season dates	Season dates	Season dates	Season dates	Season dates	Bag limit ^a	
1989	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	Closed	Closed	1
1990	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	Closed	Closed	1
1991	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	Closed	Closed	1
1992	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	Closed	Closed	1
1993	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	Closed	Closed	1
1994	2	10/25-3/1	2	Closed	0	1/1-3/1	1/15-2/16	Closed	Closed	1
1995	2	10/25-3/1	2	10/25-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
1996	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
1997	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
1998	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
1999	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
2000	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
2001	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
2002	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
2003	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	Closed	Closed	1
2004	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2005	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2006	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2007	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2008	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2009	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2010	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2011	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2012	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	Closed	Closed	1
2013	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1/1-11	1/1-11	1
2014	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1/1-11	1/1-11	1
2015	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1/1-11	1/1-11	1
2016	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1/1-11	1/1-11	1
2017	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1/1-11	1/1-11	1

^aThe statewide bag limit was the maximum number of bobcats that could be taken per person from all zones (hunting and trapping combined), and the bag limit for each zone was the maximum number that could be taken within a zone (hunting and trapping combined).

^bExcluded Drummond Island in the Upper Peninsula.

^cDrummond Island only.

^dDuring 1989-2017, Unit C included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2017.

^eDuring 1989-2017, Unit D included Clare, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, Roscommon, and Wexford counties, and Arenac County west of Highway I-75 and north of Highway M-61. Unit D also included Alcona and Oscoda counties during 1989-1990.

^fUnit E included Leelanau, Benzie, Grand Traverse, Manistee, Mason, and Lake counties.

^gUnit F included the counties of Oceana, Newaygo, Mecosta, Isabella, Midland, and portions of Bay and Arenac.

Table 2. Resident bobcat **trapping** season dates and seasonal bag limits in Michigan, 1989-2017.

Year	Bobcat management unit									
	State-wide bag limit ^a	Upper Peninsula				Lower Peninsula				
		Unit A ^b		Unit B ^c		Unit C ^d	Unit D ^e	Unit E ^f	Unit F ^g	
	Season dates	Bag limit ^a	Season dates	Bag limit ^a	Season dates	Season dates	Season dates	Season dates	Season dates	Bag limit ^a
1989	1	10/25-3/1	1	Closed	0	Closed	Closed	Closed	Closed	1
1990	1	10/25-3/1	1	Closed	0	Closed	Closed	Closed	Closed	1
1991	1	10/25-3/1	1	Closed	0	Closed	Closed	Closed	Closed	1
1992	1	10/25-3/1	1	Closed	0	Closed	Closed	Closed	Closed	1
1993	1	10/25-3/1	1	Closed	0	Closed	Closed	Closed	Closed	1
1994	2	10/25-3/1	2	Closed	0	Closed	Closed	Closed	Closed	1
1995	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	Closed	Closed	1
1996	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
1997	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
1998	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
1999	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2000	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2001	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2002	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2003	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2004	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	Closed	Closed	1
2005	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	Closed	Closed	1
2006	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2007	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	Closed	Closed	1
2008	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	Closed	Closed	1
2009	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	Closed	Closed	1
2010	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	Closed	Closed	1
2011	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	Closed	Closed	1
2012	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	Closed	Closed	1
2013	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	12/10-20	12/10-20	1
2014	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	12/10-20	12/10-20	1
2015	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	12/10-20	12/10-20	1
2016	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	12/10-20	12/10-20	1
2017	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	12/10-20	12/10-20	1

^aThe statewide bag limit was the maximum number of bobcats that could be taken per person from all zones (hunting and trapping combined), and the bag limit for each zone was the maximum number that could be taken within a zone (hunting and trapping combined).

^bExcluded Drummond Island in the Upper Peninsula.

^cDrummond Island only.

^dDuring 1989-2017, Unit C included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2017.

^eDuring 1989-2017, Unit D included Clare, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, Roscommon, and Wexford counties, and Arenac County west of Highway I-75 and north of Highway M-61. Unit D also included Alcona and Oscoda counties during 1989-1990.

^fUnit E included Leelanau, Benzie, Grand Traverse, Manistee, Mason, and Lake counties.

^gUnit F included the counties of Oceana, Newaygo, Mecosta, Isabella, Midland, and portions of Bay and Arenac.

Table 3. Estimated number of furtakers (hunters and trappers combined) pursuing bobcat and their hunting and trapping effort (days combined) in Michigan for 2016 and 2017, summarized by area.

Area	Furtakers ^a					Hunting and trapping effort				
	Year		Change (%)	Year		Change (%)				
	2016	2017		2016	2017					
No.	95 CL	No.	95 CL	Days	95 CL	Days	95 CL			
Upper Peninsula	816	48	777	81	-5	14,711	1,386	12,080	1,769	-18
Lower Peninsula	1,816	66	2,134	123	17*	14,562	813	17,203	1,807	18*
Unit C	629	43	706	78	12	5,640	604	7,137	1,376	27
Unit D	720	46	839	84	16	5,273	455	5,767	827	9
Unit E	293	30	274	50	-7	1,611	209	1,367	308	-15
Unit F	361	33	479	65	33	2,038	241	2,932	581	44*
Unspecified	108	18	106	31	-2	433	190	161	88	-63
Statewide	2,693	74	2,956	136	10*	29,706	1,572	29,444	2,476	-1

^aNumber of furtakers does not add up to statewide total because furtakers could hunt in more than one area.

*P<0.005.

Table 4. Estimated number of bobcats registered by furtakers (hunters and trappers combined) and proportion of furtakers registering at least one bobcat in Michigan during 2016 and 2017, summarized by area.

Area	Bobcats registered ^a					Furtakers registering a bobcat				
	Year		Change (%)	Year		Difference (%)				
	2016	2017		2016	2017					
No.	95 CL	No.	95 CL	%	95 CL	%	95 CL			
Upper Peninsula	185	28	171	48	-7	18	2	17	4	-1
Lower Peninsula	233	27	353	57	52*	13	1	16	2	4
Unit C	86	17	164	40	91*	14	2	23	5	9*
Unit D	84	16	113	32	34	12	2	13	4	2
Unit E	27	9	34	18	25	9	3	13	6	3
Unit F	35	11	41	20	18	10	3	9	4	-1
Unspecified	4	3	3	6	-7	3	3	3	5	0
Statewide	422	39	527	74	25	14	1	16	2	2

^aAlthough all furtakers harvesting a bobcat were required to present their animals at a DNR office for registration, this survey does not present information collected from registered bobcats.

*P<0.005.

Table 5. Estimated number of furtakers (hunters and trappers combined) attempting to capture a bobcat, days spent afield (effort), bobcats registered, and proportion of furtakers that registered a bobcat during 2017 in Michigan, summarized by county.

County	Furtakers ^a		Hunting and trapping effort (days)		Bobcats registered		Furtakers that registered a bobcat	
	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	154	38	1,212	450	31	17	20	10
Alger	51	22	517	279	0	0	0	0
Alpena	103	31	911	349	17	13	17	11
Antrim	31	17	103	79	3	6	11	17
Arenac	24	15	116	94	3	6	14	22
Baraga	17	13	185	171	3	6	20	30
Bay	0	0	0	0	0	0	0	0
Benzie	38	19	123	76	0	0	0	0
Charlevoix	27	16	151	106	0	0	0	0
Cheboygan	96	30	938	447	21	14	21	13
Chippewa	82	28	1,356	630	27	21	21	14
Clare	106	31	637	235	7	8	6	7
Crawford	92	29	555	254	7	8	7	8
Delta	120	33	1,336	544	38	22	26	12
Dickinson	75	26	723	377	14	14	14	12
Emmet	24	15	147	109	3	6	14	22
Gladwin	58	23	353	194	7	8	12	13
Gogebic	27	16	548	346	10	10	38	28
Gd. Traverse	17	13	89	83	3	6	20	30
Houghton	48	21	469	234	0	0	0	0
Iosco	72	26	476	216	14	11	19	14
Iron	96	30	1,301	529	17	15	14	11
Isabella	55	23	329	185	3	6	6	10
Kalkaska	55	23	387	202	7	8	13	14
Keweenaw	17	13	298	260	7	11	20	30

^aNumber of furtakers does not add up to statewide total because furtakers could hunt and trap in more than one county.

Table 5 (Continued). Estimated number of furtakers (hunters and trappers combined) attempting to capture a bobcat, days spent afield (effort), bobcats registered, and proportion of furtakers that registered a bobcat during 2017 in Michigan, summarized by county.

County	Furtakers ^a		Hunting and trapping effort (days)		Bobcats registered		Furtakers that registered a bobcat	
	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Lake	68	25	325	145	14	11	20	15
Leelanau	24	15	137	94	0	0	0	0
Luce	34	18	476	398	10	10	30	24
Mackinac	58	23	997	564	14	14	18	15
Manistee	58	23	257	132	10	10	18	15
Marquette	86	28	1,147	523	3	6	4	6
Mason	89	29	435	162	7	8	8	9
Mecosta	137	35	777	237	17	13	13	9
Menominee	120	33	2,120	842	14	14	9	8
Midland	41	20	267	148	0	0	0	0
Missaukee	99	30	493	182	7	8	7	8
Montmorency	151	37	1,130	416	48	21	32	12
Newaygo	158	38	904	305	7	8	4	5
Oceana	116	33	654	246	14	11	12	9
Ogemaw	120	33	976	377	10	10	9	8
Ontonagon	31	17	277	215	7	11	11	17
Osceola	144	36	969	313	27	16	19	10
Oscoda	82	28	805	417	10	10	13	11
Otsego	75	26	593	291	10	10	14	12
Presque Isle	92	29	1,147	609	21	14	22	13
Roscommon	82	28	363	146	17	13	21	14
Schoolcraft	45	20	329	187	7	8	15	17
Wexford	89	29	442	174	7	8	8	9
Unspecified	106	31	161	88	3	6	3	5

^aNumber of furtakers does not add up to statewide total because furtakers could hunt and trap in more than one county.

Table 6. Estimated number of bobcat hunters and hunting effort (days) in Michigan for 2016 and 2017, summarized by area.

Area	Hunters ^a					Hunting effort				
	Year		Year		Change (%)	Year		Year		Change (%)
	2016	2017	2016	2017		2016	2017	2016	2017	
No.	95% CL	No.	95% CL	Days	95% CL	Days	95% CL			
Upper Peninsula	420	36	373	58	-11	4,606	606	3,767	831	-18
Lower Peninsula	1,442	61	1,692	113	17*	10,156	706	12,330	1,672	21
Unit C	539	40	613	73	14	4,694	568	6,014	1,323	28
Unit D	559	41	675	76	21	3,545	361	4,014	700	13
Unit E	236	27	212	44	-10	1,003	138	825	203	-18
Unit F	255	28	312	53	22	915	125	1,476	441	61
Unspecified	40	11	51	22	27	374	182	151	86	-60
Statewide	1,846	67	2,058	122	12*	15,136	941	16,248	1,874	7

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

*P<0.005.

Table 7. Estimated number of bobcats passed, bobcats registered by hunters, and proportion of hunters that registered at least one bobcat in Michigan for 2016 and 2017, summarized by area.

Area	Bobcats passed					Bobcats registered					Hunters that registered a bobcat				
	Year		Year		Change (%)	Year		Year		Change (%)	Year		Year		Difference (%)
	2016	2017	2016	2017		2016	2017	2016	2017		2016	2017			
No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL		
Upper Peninsula	269	67	360	186	33	79	17	45	23	-44	17	3	10	5	-7
Lower Peninsula	1,017	134	1,301	232	28	178	24	250	48	41*	12	2	15	3	2
Unit C	440	95	579	158	32	71	15	130	35	82*	13	3	21	5	7
Unit D	258	51	387	108	50	62	14	86	28	37	11	2	13	4	2
Unit E	163	52	120	57	-27	22	8	14	11	-38	9	3	6	5	-3
Unit F	156	52	216	95	38	22	8	21	14	-7	9	3	7	4	-2
Unspecified	93	73	3	6	-96*	4	3	3	6	-7	9	8	7	11	-2
Statewide	1,380	172	1,664	308	21	260	29	298	54	14	14	1	14	2	0

*P<0.005.

Table 8. Estimated number of days of effort per bobcat registered by hunters in Michigan during 2014-2017, summarized by year and area.

Area	Year						Change between 2016 and 2017 (%)
	2015		2016		2017		
	Effort per registered bobcat	95% CL ^a	Effort per registered bobcat	95% CL ^a	Effort per registered bobcat	95% CL	
Upper Peninsula	64.2	13.7	58.4	13.1	84.6	39.3	45
Lower Peninsula	46.5	6.2	57.1	7.8	49.3	10.3	-14
Unit C	70.2	15.9	65.7	14.3	46.2	14.0	-30
Unit D	37.3	7.8	56.9	13.0	46.9	14.9	-18
Unit E	27.6	8.3	45.6	17.3	60.3	50.5	32
Unit F	36.1	12.0	41.6	15.5	71.8	51.0	73
Unspecified	87.8	57.2	102.0	69.8	44.0	75.3	-57
Statewide	52.3	5.9	58.2	6.8	54.5	10.2	-6

^a95% confidence limits.

*P<0.005. Comparison between 2016 and 2017.

Table 9. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2017, summarized by county.

County	Hunters ^a		Hunting effort (days)		Bobcats passed by hunters ^b		Bobcats registered by hunters		Hunters that registered at least one bobcat	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	137	35	1,010	402	92	47	27	16	20	10
Alger	41	20	281	183	27	31	0	0	0	0
Alpena	79	27	623	290	24	17	14	11	17	13
Antrim	24	15	79	68	7	11	3	6	14	22
Arenac	21	14	92	86	31	46	3	6	17	25
Baraga	7	8	31	36	0	0	0	0	0	0
Bay	0	0	0	0	0	0	0	0	0	0
Benzie	31	17	72	43	10	13	0	0	0	0
Charlevoix	27	16	151	106	17	17	0	0	0	0
Cheboygan	92	29	822	428	123	63	21	14	22	13
Chippewa	41	20	421	282	58	49	3	6	8	13
Clare	89	29	408	175	24	20	7	8	8	9
Crawford	79	27	462	241	31	23	7	8	9	10
Delta	72	26	613	298	103	102	17	15	19	14
Dickinson	38	19	325	259	3	6	0	0	0	0
Emmet	24	15	147	109	21	25	3	6	14	22
Gladwin	55	23	253	138	34	30	7	8	13	14
Gogebic	3	6	68	113	41	68	0	0	0	0
Gd. Traverse	7	8	41	58	0	0	0	0	0	0
Houghton	10	10	68	73	0	0	0	0	0	0
Iosco	62	24	373	191	41	34	7	8	11	12
Iron	45	20	387	233	45	48	10	13	15	17
Isabella	38	19	130	92	27	32	3	6	9	14
Kalkaska	38	19	199	137	10	10	3	6	9	14
Keweenaw	0	0	0	0	0	0	0	0	0	0

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

^bBobcats that hunter could have harvested but chose not to take.

Table 9. (Continued) Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2017, summarized by county.

County	Hunters ^a		Hunting effort (days)		Bobcats passed by hunters ^b		Bobcats registered by hunters		Hunters that registered at least one bobcat	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Lake	55	23	195	97	27	23	7	8	13	14
Leelanau	21	14	103	75	0	0	0	0	0	0
Luce	27	16	277	246	14	14	3	6	13	19
Mackinac	21	14	212	207	31	38	3	6	17	25
Manistee	34	18	86	49	14	14	3	6	10	16
Marquette	38	19	171	99	0	0	0	0	0	0
Mason	82	28	329	125	68	43	3	6	4	7
Mecosta	99	30	435	161	99	73	7	8	7	8
Menominee	75	26	709	324	17	19	3	6	5	7
Midland	24	15	96	78	7	11	0	0	0	0
Missaukee	92	29	418	159	24	17	3	6	4	6
Montmorency	130	35	1,017	407	116	61	31	17	24	11
Newaygo	96	30	497	241	68	40	7	8	7	8
Oceana	72	26	319	176	14	18	3	6	5	8
Ogemaw	92	29	729	342	51	36	7	8	7	8
Ontonagon	17	13	58	44	0	0	0	0	0	0
Osceola	116	33	586	215	58	39	24	15	21	11
Oscoda	75	26	736	409	55	50	10	10	14	12
Otsego	62	24	418	260	27	20	7	8	11	12
Presque Isle	86	28	1,010	592	96	56	14	11	16	12
Roscommon	62	24	205	95	21	18	14	11	22	16
Schoolcraft	27	16	144	100	21	24	3	6	13	19
Wexford	68	25	288	127	62	49	3	6	5	8
Unspecified	51	22	151	86	3	6	3	6	7	11

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

^bBobcats that hunter could have harvested but chose not to harvest.

Table 10. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2017, summarized by hunting method and area.

Variable and area	Hunting method							
	Dogs		Calls		Other		Unknown	
	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunters (No.)^a								
UP	113	32	223	45	68	25	3	6
LP	521	68	1,120	96	144	36	24	15
Unit C	212	44	387	59	51	22	7	8
Unit D	212	44	445	63	65	25	7	8
Unit E	58	23	144	36	10	10	3	6
Unit F	89	29	209	44	21	14	7	8
Unspecified	21	14	17	13	10	10	7	8
Statewide	623	74	1,339	103	216	44	34	18
Hunting effort (Days)								
UP	1,219	495	1,969	555	565	267	14	23
LP	4,610	1,319	6,528	834	1,086	458	106	72
Unit C	2,421	1,002	2,925	635	647	422	21	25
Unit D	1,243	447	2,428	479	305	151	38	46
Unit E	257	120	476	140	68	69	24	40
Unit F	688	395	699	179	65	61	24	30
Unspecified	62	60	45	35	45	49	0	0
Statewide	5,891	1,421	8,542	1,003	1,695	546	120	75
Bobcats passed by hunters (No.)								
UP	236	172	86	58	34	43	3	6
LP	692	194	551	124	55	36	3	6
Unit C	312	132	250	82	17	17	0	0
Unit D	158	74	205	75	21	21	3	6
Unit E	68	44	38	27	14	23	0	0
Unit F	154	87	58	38	3	6	0	0
Unspecified	3	6	0	0	0	0	0	0
Statewide ^b	932	272	637	136	89	56	7	8

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

Table 10 (Continued). Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2017, summarized by hunting method and area.

Variable and area	Hunting method							
	Dogs		Calls		Other		Unknown	
	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Bobcats registered by hunters (No.)								
UP	24	17	14	14	7	8	0	0
LP	96	31	127	34	24	15	3	6
Unit C	62	25	58	23	10	10	0	0
Unit D	21	14	51	22	14	11	0	0
Unit E	7	8	7	8	0	0	0	0
Unit F	7	8	10	10	0	0	3	6
Unspecified	0	0	3	6	0	0	0	0
Statewide	120	35	144	37	31	19	3	6
Hunters that registered at least one bobcat (%)								
UP	18	11	5	4	10	11	0	0
LP	18	5	11	3	17	9	14	22
Unit C	27	9	15	6	20	17	0	0
Unit D	10	6	12	5	21	15	0	0
Unit E	12	13	5	5	0	0	0	0
Unit F	8	9	5	5	0	0	50	58
Unspecified	0	0	20	30	0	0	0	0
Statewide	18	5	10	3	13	7	10	16

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

Table 11. Estimated number of bobcat hunters using dogs and their hunting effort (days) in Michigan for 2016 and 2017, summarized by area.

Area	Hunters using dogs ^a					Hunting effort				
	Year		Change (%)	Year		Change (%)				
	2016	2017		2016	2017					
No.	95% CL	No.	95% CL	Days	95% CL	Days	95% CL			
Upper Peninsula	123	20	113	32	-8	1,274	316	1,219	495	-4
Lower Peninsula	484	38	521	68	8	3,946	504	4,610	1,319	17
Unit C	220	26	212	44	-3	2,139	418	2,421	1,002	13
Unit D	194	25	212	44	9	1,248	215	1,243	447	0
Unit E	66	14	58	23	-12	304	77	257	120	-16
Unit F	71	15	89	29	25	255	65	688	395	170
Unspecified	26	9	21	14	-20	306	175	62	60	-80*
Statewide	601	42	623	74	4	5,526	624	5,891	1,421	7

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

*P<0.005.

Table 12. Estimated number of bobcats passed, bobcats registered by hunters using dogs, and proportion of these hunters that registered at least one bobcat in Michigan for 2016 and 2017, summarized by area.

Area	Bobcats passed ^a					Bobcats registered					Hunters that registered a bobcat				
	Year		Change (%)	Year		Change (%)	Year		Change (%)	Year		Difference (%)			
	2016	2017		2016	2017		2016	2017		2016	2017				
No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL				
Upper Peninsula	126	49	236	172	87	44	13	24	17	-45	33	8	18	11	-15
Lower Peninsula	616	115	692	194	12	66	14	96	31	45	14	3	18	5	4
Unit C	282	86	312	132	10	26	9	62	25	140	12	4	27	9	16
Unit D	145	37	158	74	9	24	9	21	14	-14	12	4	10	6	-3
Unit E	86	41	68	44	-20	4	3	7	8	87	6	5	12	13	6
Unit F	103	43	154	87	50	13	6	7	8	-47	18	8	8	9	-10
Unspecified	86	73	3	6	-96*	4	3	0	0	-100*	14	12	0	0	-14*
Statewide	828	151	932	272	12	114	20	120	35	5	18	3	18	5	0

*P<0.005.

Table 13. Estimated number of bobcat hunters using calls and their hunting effort (days) in Michigan for 2016 and 2017, summarized by area.

Area	Hunters using calls ^a					Hunting effort				
	2016		2017		Change (%)	2016		2017		Change (%)
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	258	28	223	45	-14	2,348	392	1,969	555	-16
Lower Peninsula	924	51	1,120	96	21*	5,200	441	6,528	834	26*
Unit C	323	31	387	59	20	2,102	325	2,925	635	39
Unit D	330	32	445	63	35*	1,923	262	2,428	479	26
Unit E	169	23	144	36	-15	631	103	476	140	-24
Unit F	167	23	209	44	25	544	93	699	179	28
Unspecified	5	4	17	13	211	46	39	45	35	-3
Statewide	1,175	56	1,339	103	14*	7,594	585	8,542	1,003	12

^aNumber of hunters does not add up to statewide total because hunters could hunt in more than one area.

*P<0.005.

Table 14. Estimated number of bobcats passed, bobcats registered by hunters using calls, and proportion of these hunters that registered at least one bobcat in Michigan for 2016 and 2017, summarized by area.

Area	Bobcats passed					Bobcats registered					Hunters that registered a bobcat				
	2016		2017		Change (%)	2016		2017		Change (%)	2016		2017		Difference (%)
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		%	95% CL	%	95% CL	
Upper Peninsula	125	43	86	58	-31	24	9	14	14	-43	9	3	5	4	-5
Lower Peninsula	352	57	551	124	57*	86	17	127	34	47	9	2	11	3	2
Unit C	134	36	250	82	87	35	11	58	23	67	11	3	15	6	4
Unit D	110	32	205	75	87	27	9	51	22	87	8	3	12	5	3
Unit E	57	21	38	27	-34	16	7	7	8	-58	10	4	5	5	-5
Unit F	51	19	58	38	13	7	5	10	10	40	4	3	5	5	1
Unspecified	5	5	0	0	-100*	0	0	3	6	NA	0	0	20	30	20
Statewide	482	71	637	136	32	110	19	144	37	31	9	2	10	3	1

*P<0.005.

Table 15. Correlation between average bobcat pelt prices and number of hunters, days of effort, bobcats registered, and effort per registered bobcat in Michigan during 1997-2017, summarized by region.^a

Estimate and region	Correlation ^b	Significance (P-value) ^c
Number of hunters		
UP	0.46	0.04
LP	-0.04	0.85
Days of effort		
UP	0.46	0.04
LP	0.29	0.20
Bobcats registered ^d		
UP	-0.17	0.47
LP	-0.07	0.75
Effort per bobcats registered		
UP	0.18	0.44
LP	0.50	0.02

^aMean pelt prices were the average paid in Minnesota and Wisconsin (e.g., Abraham and Dexter 2016, Lohr 2016). Pelt prices were reported in 2017 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2017).

^bPearson product moment correlation coefficient.

^cP-value is the probability of obtaining this correlation result (2-sided test).

^dThe tally of bobcats registered by furtakers at DNR registration stations, rather than estimate from survey.

Table 16. Estimated number of bobcat trappers and their trapping effort (days) in Michigan for 2016 and 2017, summarized by area.

Area	Trappers ^a					Trapping effort				
	2016		2017		Change (%) ^b	2016		2017		Change (%) ^b
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	486	38	486	65	0	10,105	1,108	8,312	1,443	-18
Lower Peninsula	581	41	654	75	13	4,406	360	4,874	657	11
Unit C	134	21	164	39	23	946	170	1,123	304	19
Unit D	233	27	229	46	-1	1,728	223	1,754	384	1
Unit E	86	17	72	26	-17	609	127	541	229	-11
Unit F	143	21	205	43	44	1,124	186	1,456	353	30
Unspecified	70	15	58	23	-16	59	54	10	17	-82
Statewide	1,129	55	1,185	98	5	14,570	1,150	13,196	1,566	-9

^aNumber of trappers does not add up to statewide total because trappers could trap in more than one area.

^bP<0.005.

Table 17. Estimated number of bobcats captured, bobcats released alive, and bobcats registered by trappers in Michigan for 2016 and 2017, summarized by area.

Area	Bobcats captured					Bobcats released alive					Bobcats registered				
	2016		2017		Change (%) ^a	2016		2017		Change (%) ^a	2016		2017		Change (%) ^a
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL	
Upper Peninsula	170	35	216	69	27	64	20	89	52	39	106	22	127	40	19
Lower Peninsula	191	42	202	59	6	136	36	99	46	-27	55	13	103	31	87*
Unit C	51	21	48	25	-7	37	17	14	14	-63	15	7	34	18	134
Unit D	60	23	55	34	-9	38	19	27	30	-29	22	8	27	16	25
Unit E	22	13	51	33	134	16	12	31	26	87	5	4	21	14	274
Unit F	57	26	48	25	-16	44	23	27	20	-38	13	6	21	14	60
Unspecified	2	2	0	0	-100	2	2	0	0	NA	0	0	0	0	
Statewide	363	55	418	94	15	202	41	188	74	-7	161	26	229	50	42

^aP<0.005.

Table 18. Estimated proportion of bobcat trappers that captured at least one bobcat and proportion that registered at least one bobcat in Michigan for 2016 and 2017, summarized by area.

Area	Trappers that captured a bobcat					Trappers that registered a bobcat				
	Year				Difference (%)	Year				Difference (%) ^a
	2016		2017			2016		2017		
%	95% CL	%	95% CL	%	95% CL	%	95% CL			
Upper Peninsula	21	3	27	6	6	17	3	21	6	4
Lower Peninsula	19	3	23	5	4	9	2	16	4	6
Unit C	22	6	25	10	3	11	5	21	10	10
Unit D	16	4	18	8	2	9	3	12	7	2
Unit E	15	7	43	18	28*	6	5	29	16	22*
Unit F	23	6	18	8	-5	9	4	10	6	1
Unspecified	3	3	0	0		0	0	0	0	
Statewide	19	2	23	4	4	12	2	17	3	5

^{*}P<0.005.

Table 19. Estimated number of days of effort per bobcat registered in Michigan by trappers for the 2014-2017, summarized by year and area.

Area	Year						Change between 2016 and 2017 (%)
	2014		2016		2017		
	Effort per registered bobcat	95% CL ^a	Effort per registered bobcat	95% CL ^a	Effort per registered bobcat	95% CL	
Upper Peninsula	60.0	8.2	95.1	20.3	65.6	19.4	-31
Lower Peninsula	33.9	5.2	80.1	19.3	47.4	13.7	-41
Unit C	34.8	11.2	64.5	30.5	32.8	15.4	-49
Unit D	70.3	28.2	78.6	29.9	64.0	36.7	-19
Unit E	16.9	4.6	110.7	85.1	26.3	16.7	-76
Unit F	31.9	8.7	87.6	42.7	70.8	48.0	-19
Unspecified	28.8	30.6	0.0	0.0	0.0	0.0	NA
Statewide	50.1	5.3	90.3	14.8	57.5	12.1	-36*

^a95% confidence limits.

^{*}P<0.005. Comparison between 2016 and 2017.

Table 20. Estimated number of trappers, trapping effort (days), bobcats captured, bobcats released, bobcats registered, and proportion of trappers that captured and registered a bobcat in Michigan during 2017, summarized by county.

County	Trappers ^a		Trapping effort (days)		Bobcats captured by trappers		Bobcats released alive by trappers		Bobcats registered by trappers		Trappers that captured at least one bobcat		Trappers that registered at least one bobcat	
	No.	95%	No.	95%	No.	95%	No.	95%	No.	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL		CL
Alcona	34	18	202	124	3	6	0	0	3	6	10	16	10	16
Alger	21	14	236	187	3	6	3	6	0	0	17	25	0	0
Alpena	38	19	288	153	10	10	7	8	3	6	27	22	9	14
Antrim	7	8	24	40	0	0	0	0	0	0	0	0	0	0
Arenac	3	6	24	40	0	0	0	0	0	0	0	0	0	0
Baraga	10	10	154	167	3	6	0	0	3	6	33	45	33	45
Bay	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Benzie	7	8	51	63	0	0	0	0	0	0	0	0	0	0
Charlevoix	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cheboygan	17	13	116	99	0	0	0	0	0	0	0	0	0	0
Chippewa	55	23	935	549	31	22	7	11	24	19	38	20	31	19
Clare	27	16	229	138	0	0	0	0	0	0	0	0	0	0
Crawford	14	11	92	80	0	0	0	0	0	0	0	0	0	0
Delta	51	22	723	412	51	40	31	36	21	16	47	21	33	20
Dickinson	38	19	397	273	14	14	0	0	14	14	27	22	27	22
Emmet	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Gladwin	14	11	99	91	3	6	3	6	0	0	25	36	0	0
Gogebic	24	15	479	327	17	15	7	8	10	10	57	31	43	31
Gd. Traverse	10	10	48	59	3	6	0	0	3	6	33	45	33	45
Houghton	41	20	401	207	0	0	0	0	0	0	0	0	0	0
Iosco	14	11	103	93	7	8	0	0	7	8	50	41	50	41
Iron	58	23	914	458	10	13	3	6	7	8	12	13	12	13
Isabella	24	15	199	127	0	0	0	0	0	0	0	0	0	0
Kalkaska	24	15	188	121	3	6	0	0	3	6	14	22	14	22
Keweenaw	17	13	298	260	7	11	0	0	7	11	20	30	20	30

^aNumber of trappers does not add up to statewide total because trappers could trap in more than one county.

Table 20. (Continued) Estimated number of trappers, trapping effort (days), bobcats captured, bobcats released, bobcats registered, and proportion of trappers that captured and registered a bobcat in Michigan during 2017, summarized by county.

County	Trappers ^a		Trapping effort (days)		Bobcats captured by trappers		Bobcats released alive by trappers		Bobcats registered by trappers		Trappers that captured at least one bobcat		Trappers that registered at least one bobcat	
	No.	95%	No.	95%	No.	95%	No.	95%	No.	95%	%	95%	%	95%
		CL		CL		CL		CL		CL		CL		
Lake	14	11	130	109	17	23	10	17	7	8	50	41	50	41
Leelanau	7	8	34	56	0	0	0	0	0	0	0	0	0	0
Luce	14	11	199	197	21	29	14	23	7	8	50	41	50	41
Mackinac	41	20	784	468	31	28	21	25	10	13	33	22	17	18
Manistee	24	15	171	123	24	20	17	19	7	8	71	28	29	28
Marquette	51	22	976	501	3	6	0	0	3	6	7	11	7	11
Mason	14	11	106	92	7	11	3	6	3	6	25	36	25	36
Mecosta	48	21	342	164	10	10	0	0	10	10	21	18	21	18
Menominee	72	26	1,411	661	14	11	3	6	10	10	19	14	14	13
Midland	17	13	171	126	7	11	7	11	0	0	20	30	0	0
Missaukee	10	10	75	81	3	6	0	0	3	6	33	45	33	45
Montmorency	24	15	113	83	24	17	7	8	17	13	86	22	71	28
Newaygo	75	26	408	177	7	8	7	8	0	0	9	10	0	0
Oceana	48	21	336	164	24	19	14	14	10	10	36	21	21	18
Ogemaw	34	18	247	135	21	29	17	28	3	6	20	21	10	16
Ontonagon	17	13	219	207	7	11	0	0	7	11	20	30	20	30
Osceola	51	22	384	176	3	6	0	0	3	6	7	11	7	11
Oscoda	7	8	68	80	0	0	0	0	0	0	0	0	0	0
Otsego	21	14	175	122	3	6	0	0	3	6	17	25	17	25
Presque Isle	21	14	137	96	7	8	0	0	7	8	33	32	33	32
Roscommon	24	15	158	108	7	8	3	6	3	6	29	28	14	22
Schoolcraft	17	13	185	158	3	6	0	0	3	6	20	30	20	30
Wexford	21	14	154	120	7	8	3	6	3	6	33	32	17	25
Unspecified	58	23	10	17	0	0	0	0	0	0	0	0	0	0

^aNumber of trappers does not add up to statewide total because trappers could trap in more than one county.

Table 21. Trap type used by bobcat trappers in Michigan during 2017.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	85	3	1,003	91
Conibears	27	4	319	54
Other ^a	2	1	24	15

^aIncluded snares and live traps, although snares were not legal to use to capture bobcats.

Table 22. Preferred trap type of bobcat trappers in Michigan during 2017.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	65	4	767	81
Conibears	15	3	182	41
No preference	16	3	195	42
Other ^a	2	1	24	15
No answer	1	1	17	13

^aSnares were not legal to use to capture bobcats.

Table 23. Correlation between average bobcat pelt prices and number of trappers, days of effort, bobcats registered, and effort per registered bobcat in Michigan during 1997-2017, summarized by region.^a

Estimate and region	Correlation ^b	Significance (P-value) ^c
Number of trappers		
UP	0.66	<0.01
LP ^d	-0.20	0.53
Days of effort		
UP	0.64	<0.01
LP ^d	-0.19	0.55
Bobcats registered ^e		
UP	0.20	0.38
LP ^d	0.22	0.35
Effort per bobcats registered		
UP	0.14	0.55
LP ^d	-0.26	0.41

^aMean pelt prices were the average paid in Minnesota and Wisconsin (e.g., Abraham and Dexter 2016, Lohr 2016). Pelt prices were reported in 2017 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2017).

^bPearson product moment correlation coefficient.

^cP-value is the probability of obtaining this correlation result (2-sided test).

^dBobcat could be harvested by trappers in the LP during 2004-2005 and 2008-2017 only.

^eThe tally of bobcats registered by furtakers at DNR registration stations, rather than estimate from survey.

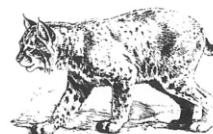
Appendix A. The questionnaire sent to people that obtained a bobcat harvest tag in Michigan for the 2017 bobcat hunting and trapping seasons.



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

BOBCAT HUNTER AND TRAPPER SURVEY

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 questionnaire even if you did not harvest a bobcat during the 2017-18 hunting and trapping seasons (December 1, 2017, through March 1, 2018).
- Only the person this questionnaire was addressed to should answer these questions. Do not report results for another person.

PART A: Hunting Questions (Questions about trapping are on reverse side)

1. Did you hunt bobcats during the 2017-18 season?

- ¹ Yes ² No (Skip to Question #9)

2. How many years have you hunted bobcats? _____ Years

3. If you hunted bobcats during the 2017-18 season, please complete the following table.

HUNTING METHOD (Select hunting method used.)	COUNTY HUNTED (For each hunting method used, list the county that you hunted on separate lines.)	NUMBER OF DAYS HUNTED (Count all days hunted even if you did not have an opportunity to take a bobcat)	NUMBER OF BOBCAT REGISTERED (Count only bobcat where a seal was attached to the pelt, and the animal was returned to you.)	NUMBER OF BOBCATS NOT TAKEN (Count the number of bobcats you called within range or treed but chose <u>not</u> to harvest.)
¹ <input type="checkbox"/> Dogs ² <input type="checkbox"/> Calls ³ <input type="checkbox"/> Other				
¹ <input type="checkbox"/> Dogs ² <input type="checkbox"/> Calls ³ <input type="checkbox"/> Other				
¹ <input type="checkbox"/> Dogs ² <input type="checkbox"/> Calls ³ <input type="checkbox"/> Other				
¹ <input type="checkbox"/> Dogs ² <input type="checkbox"/> Calls ³ <input type="checkbox"/> Other				

4. On what lands did you hunt bobcats during the 2017-18 season? (You may check more than one.)

- ¹ Property owned by me or my family ² Private land, with permission
³ Private land open to public hunting (For example, Commercial Forests, Hunter Access Program) ⁴ Public land (State Game Area, State or National Forest, etc.)

5. Did you hire a guide to assist with hunting bobcats at any time during the 2017-18 season? ¹ Yes ² No

6. Did you hunt bobcats with dogs during the 2017-18 season?

- ¹ Yes ² No (Skip to Question #9)

7. Report the number of bobcat chases with dogs you participated in during the 2017-18 season. _____ Chases

8. Who owned the dogs that you used to hunt bobcats during the 2017-18 season? (Check one)

- ¹ Normally use dogs that I own.
 ² Normally use dogs owned by someone else.
 ³ Normally use a combination of my dogs and dogs owned by someone else.

PART B: Trapping Questions

9. Did you attempt to harvest a bobcat while trapping in the 2017-18 season?

- ¹ Yes
 ² No (Skip to Question #16)

10. How many years have you trapped bobcats? _____ Years

11. If you trapped bobcats during the 2017-18 season, please complete the following table.

COUNTY TRAPPED (List each county that you trapped for bobcat.)	NUMBER OF DAYS TRAPPED	NUMBER OF BOBCAT CAUGHT AND RELEASED (Count only bobcats you released alive from your traps.)	NUMBER OF BOBCAT REGISTERED (Count only bobcat where a seal was attached to the pelt, and the animal was returned to you.)

12. On what lands did you trap bobcats during the 2017-18 season? (You may check more than one.)

- ¹ Property owned by me or my family
 ² Private land, with permission
 ³ Private land open to public hunting (For example, Commercial Forests, Hunter Access Program)
 ⁴ Public land (State Game Area, State or National Forest, etc.)

13. How many of the following traps did you set for bobcat in the 2017-18 season?

- (For each type, record the average number used per day.)
 _____ Foothold traps
 _____ Conibears
 _____ Other (Please specify _____)

14. Which capture method do you prefer to catch bobcats? (Check one.)

- ¹ Foothold traps
 ² Conibears
 ³ No preference
 ⁴ Other (please specify _____)

15. Did you catch any bobcats in traps that were set for another species in the 2017-18 season?

- ¹ Yes
 ² No

PART C: General Questions

16. Compared to the previous three years, what is the status of bobcats in the county that you prefer to hunt or trap bobcats in the 2017-18 season?

- ¹ Increasing
 ² Decreasing
 ³ Stable
 ⁴ Not present
 ⁵ Unknown

17. Do you have any comments or suggestions about bobcat management in Michigan? Also describe any other incidental bobcats you may have captured but have not reported on this report (report county captured and whether it was released alive or registered as an accidental take).

Please return questionnaire in the enclosed postage-paid envelope.
Thank you for your help.