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2014 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 2014, 6,525 people obtained a bobcat harvest tag valid for the hunting and trapping seasons (7% greater than in 2013). About 48% (3,108) of these tag-holders attempted to hunt or trap bobcats, and 22% of these furtakers registered at least one bobcat. An estimated 2,002 people attempted to hunt bobcats and spent 17,539 days hunting and registered 349 bobcats. Nearly 1,398 people attempted to trap bobcats and spent 19,268 days trapping and registered 381 bobcats. The number of hunters and trappers combined increased significantly by 9% statewide between 2013 and 2014; similarly, the number of bobcat taken between 2013 and 2014 increased significantly by 23%. In 2014, the number of furtakers (hunters and trappers combined) participating in hunting and trapping seasons reached the highest level recorded during 2003 to 2014. Although the number of furtakers peaked in 2014, the estimated number of bobcats registered by both hunters and trappers in 2014 was near the average taken annually during 2003 and 2014. In 2014, the effort per registered bobcat decreased significantly among hunters in the UP and among trappers in the LP. The measure of effort per bobcat registered is an indirect measure of the abundance of bobcats. Decreasing estimates of effort per catch suggests more bobcats in 2014 than 2013. Changes in estimates between 2013 and 2014 should be viewed cautiously because Michigan experienced unseasonably cold temperatures and above normal snowfall during December 2013 through February 2014. These conditions probably affected hunting and trapping opportunities and indices of bobcat abundance derived from furtakers.

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INTRODUCTION

The Natural Resources Commission (NRC) and 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 2014, bobcats could be harvested during both hunting and trapping seasons in six management units (Tables 1 and 2). The length of the hunting and trapping seasons were the same as in 2013. 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. 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 in units in the Lower Peninsula (LP) (Figure 1). Successful furtakers were required to immediately attach the harvest tag to the bobcat and were required to register bobcats within 10 days of the end of the season for the unit 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 information collected from registered bobcats.

In 2014, hunting was allowed on both public and private lands in all open management units. In addition, trapping was allowed on both public and private lands in units A, B, E and F; however, trapping was allowed only on private land in units C and D. In 2014, trappers could use body-gripping (e.g., conibear) traps, foothold traps, and live retraining cage traps to capture bobcats in the UP and only foothold traps in the LP.

METHODS

A questionnaire (Appendix A) was sent to everyone who obtained a bobcat harvest tag in 2014 (6,525 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 their 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. 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 2015, and nonrespondents were mailed up to two follow-up questionnaires. Although 6,525 people were sent the questionnaire, 112 questionnaires were undeliverable, resulting in an adjusted sample size of 6,413. Questionnaires were returned by 3,439 people, yielding a 54% adjusted response rate.

Although all harvest tag holders had an opportunity to report information about their hunting and trapping activity, not everybody reported. 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 number of animals registered was used as an auxiliary variate to improve the estimates of mean days of effort required per registered bobcat (i.e., ratio estimates). 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.

Statistical tests are used routinely to determine the likelihood the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating the difference between the means was larger than would be expected 995 out of 1,000 times ($P < 0.005$), if the study had been repeated (Payton et al. 2003).

RESULTS

Hunting and Trapping Combined

In 2014, 6,525 people obtained a bobcat harvest tag valid for the bobcat hunting and trapping seasons, which was 7% greater than in 2013 (6,112 people obtained a tag in 2013). About 48 ± 1% (3,108) of these tag holders attempted to hunt or trap bobcats (Table 3). Furthermore, about 4 ± 1% (292 ± 31) of the tag holders attempted both hunting and trapping bobcats.

Furtakers spent 36,807 days afield ($\bar{x}$ = 11.8 ± 0.5 days/furtaker) and registered 730 bobcats ($\bar{x}$ = 0.24 ± 0.02 bobcats/furtaker). Furtakers spent about 19,055 days afield pursuing bobcats in the UP and 17,181 days in the LP (Table 3). About 22% of the furtakers registered at least one bobcat (Table 4). Nearly 20 ± 1% of the furtakers registered only one bobcat and 2% registered two bobcats. About 25% of the furtakers in the UP registered at least one bobcat (Table 4). Nearly 20 ± 2% of the UP furtakers registered only one bobcat and 5 ± 1% registered two bobcats. An estimated 21% of furtakers in the LP registered a bobcat.

The number of furtakers seeking bobcats increased significantly by 9% statewide between 2013 and 2014; however, their effort in 2013 and 2014 were not significantly different statewide (Table 3, Figure 2). The number of furtakers did not significantly change between 2013 and 2014 in the UP but increased significantly by 18% in the LP. As the number of

furtakers seeking bobcats increased statewide, the number of bobcats registered also increased significantly by 23% between 2013 and 2014 (Table 4). In addition, a greater proportion of furtakers registered a bobcat in 2014 than in 2013 (22% versus 18%).

Counties with 120 or more furtakers that pursued bobcats included Alcona, Delta, Montmorency, Menominee, Iron, and Roscommon (Table 5). Counties with 40 or more registered bobcats taken within that county included Alcona and Delta.

About 27 ± 1% of furtakers reported the bobcat population was stable in the county they preferred to hunt or trap bobcats, which was similar to the 2013 estimate (Figures 3-5). About 15 ± 1% reported bobcat numbers were improving and 10 ± 1% reported fewer bobcats. Nearly 41 ± 1% of the furtakers were uncertain of the status of bobcats.

Hunting

About 31 ± 1% (2,002 hunters) of the tag-holders attempted to hunt bobcats during the 2014 seasons (Table 6). About 482 people hunted in the UP and 1,524 hunted in the LP. The hunters statewide had hunted bobcats an average of 7.6 years (±0.4 year). Bobcat hunters most frequently hunted on public land (60 ± 2%). About 43 ± 2% of the hunters hunted on private land not owned by themselves or their family, while 40 ± 2% hunted bobcats on their own land or land owned by their family. Nearly 28 ± 2% of the hunters hunted on public land only, 40 ± 2% hunted on private land only, and 32 ± 2% hunted on both public and private lands.

Hunters spent about 17,539 days afield hunting bobcats ($\bar{x}$ = 8.8 ± 0.5 days/hunter) and registered an estimated 349 bobcats ($\bar{x}$ = 0.17 ± 0.02 bobcats/hunter, Table 7). Hunters spent about 5,328 days afield hunting bobcats in the UP and 11,800 days hunting bobcats in the LP. The estimated number of days of effort per bobcat registered by hunters statewide was 50.2 days in 2014.

Hunters registered about 48% of the bobcats registered by furtakers (Figure 6). About 17% of bobcat hunters statewide harvested at least one bobcat (Table 7). Nearly 16 ± 2% of hunters registered only one bobcat and 1 ± 0.3% registered two bobcats. An estimated 16% of the hunters in the UP registered at least one bobcat; 15 ± 3% of UP hunters registered one bobcat and 2 ± 1% registered two bobcats. An estimated 17% of hunters in the LP registered a bobcat.

Counties with 80 or more hunters pursuing bobcats included Alcona, Montmorency, Roscommon, Alpena, Missaukee, Presque Isle, Delta, Kalkaska, Menominee, and Clare (Table 8). Counties with at least 13 hunter-registered bobcats originating from that county included Alcona, Alpena, Cheboygan, Kalkaska, Montmorency, Ogemaw, Roscommon, Missaukee, and Gogebic.

The number of hunters statewide increased significantly by 16% between 2013 and 2014 (Table 6); additionally, their hunting effort increased significantly by 24%. The number of times hunters passed up an opportunity to take a bobcat and the number of bobcats registered by hunters both increased significantly statewide between 2013 and 2014 (increased 42% and 40%, respectively, Table 7).

The number of hunters in the UP in 2014 did not significantly change from 2013. Additionally, number of passed bobcats, registered bobcats, and hunting success in 2014 were not significantly different than in 2013. In contrast, the number of hunters in the LP increased significantly by 21% between 2013 and 2014, and the number of bobcats passed, and bobcats registered significantly increased (increased 46% and 51%, respectively). The proportion of LP hunters registering a bobcat was not significantly different. The number of days of effort per bobcat registered by hunters statewide (50.2) was not statistically different from estimates for 2013. Hunting effort per bobcat was significantly less in the UP and in units C and F, but it was significantly greater in Unit E (Table 9, Figure 7).

Hunters most frequently used calls (58 ± 2%) or dogs (38 ± 2%) to hunt bobcats (Table 10). The estimated number of people hunting bobcats with dogs statewide in 2014 increased significantly by 14% from 2013, but their hunting effort was not significantly different (Table 11). In contrast, hunter success, the number of bobcats passed, and the number of bobcats registered by hunters using dogs statewide increased significantly between 2013 and 2014 (Tables 11 and 12). The estimated number of people hunting bobcats with calls statewide and their hunting effort increased significantly between 2013 and 2014; increasing 22% and 23%, respectively (Table 13). Among hunters using calls, the number of bobcats passed and number registered were not significantly different between 2013 and 2014 (Table 14).

Bobcat hunters using dogs participated in an estimated 3,070 ± 337 chases of bobcats statewide in 2014, which was significantly greater by 34% than in 2013 (Figure 8). About 26 ± 2% of the bobcat hunters had an opportunity to harvest a bobcat but chose not to harvest the bobcat, which was not significantly different from 2013. An estimated 514 ± 40 hunters chose not to harvest bobcats on 1,488 ± 227 occasions in 2014 (Figure 8). Among those hunters that passed up an opportunity to take a bobcat, 45 ± 4% passed one bobcat, 21 ± 3% passed two bobcats, 15 ± 3% passed three bobcats, 5 ± 2% passed four bobcats, and 13 ± 3% 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 10 ± 2% bobcat hunters that hunted with dogs hired a guide service to assist with their hunting (74 ± 16 hunters).

About 33 ± 2% of bobcat hunters reported the bobcat population was stable in the county they preferred to hunt bobcats, which was similar to the 2013 estimate (Figures 3-5). About 17 ± 2% reported bobcat numbers were increasing and 15 ± 1% reported fewer bobcats. Nearly 29 ± 2% of bobcat hunters were uncertain of the status of bobcats.

The mean value of bobcat pelts was positively correlated with the number of days of effort per registered bobcat during 1997-2014 (Table 15). In addition, the mean value of bobcat pelts was negatively correlated with the number of bobcats registered in the UP but uncorrelated with registration totals in the LP.

Trapping

An estimated 21 ± 1% (1,398 trappers) of the tag-holders trapped bobcats during the 2014 season (Table 16), and these trappers had trapped bobcats an average of 6.6 years

(±0.5 year). Most trappers trapped bobcats on private land owned by themselves or their family (54 ± 2%). About 44 ± 2% of trappers trapped on private lands not owned by themselves or their family and about 30 ± 2% trapped on public land. About 69 ± 2% trapped on private land only, 13 ± 2% of the trappers trapped on public land only, and 17 ± 2% trapped on both public and private lands.

Trappers spent about 19,268 days afield trapping bobcats ($\bar{x}$ = 13.8 ± 0.8 days/trapper), caught 727 bobcats, registered 381 bobcats ($\bar{x}$ = 0.27 ± 0.02 bobcats/trapper), and released 345 bobcats from their traps during the 2014 season (Table 16, Figure 9).

The number of trappers did not significantly change statewide between 2013 and 2014. Additionally, trapping effort, the number of bobcats captured, and the number of bobcats registered by trappers did not change significantly (Table 16 and 17). The proportion of trappers registering a bobcat also did not change significantly between 2013 and 2014 (21 versus 25%, Table 18). The estimated number of days of effort per bobcat registered by trappers statewide was 50.5 days in 2014 and did not change significantly from 2013 (Table 19, Figure 7). Within the LP, however, the number of days of effort per bobcat registered by trappers decreased significantly by 43%.

Trappers registered about 53% of the bobcats registered by furtakers (Figure 6). About 31% of bobcat trappers captured at least one bobcat and 25% registered at least one bobcat (Table 18). Nearly 22 ± 2% of the trappers registered only one bobcat and 3 ± 1% registered two bobcats. Nearly 12 ± 2% of the bobcat trappers released bobcats that they caught. They released 345 bobcats from their traps, which was not significantly different from the number released in 2013. About 11 ± 2% of the bobcat trappers caught a bobcat in a trap set for another furbearer (Figure 9).

Counties with 70 or more trappers pursuing bobcats included Delta and Iron (Table 20). Delta was the only county with more than 30 registered bobcats originating from that county.

Most trappers used foothold traps (85%), while 29% of the trappers used body gripping traps (e.g., conibears) (Table 21). Most trappers preferred to use foothold traps (58%), while 19% preferred to use conibears (Table 22). An estimated 18% of trappers did not have a preferred trap type.

About 38 ± 2% of bobcat trappers reported the bobcat population was stable in the county they preferred to trap bobcats (Figures 3-5). About 23 ± 2% reported bobcat numbers were increasing and 9 ± 1% reported fewer bobcats. Nearly 26 ± 2% of bobcat trappers were uncertain of the status of bobcats.

The mean value of bobcat pelts was positively correlated with the number of trappers, their days spent afield, and days of effort per registered bobcat during 1997-2013 in the UP (Table 23). In contrast, the mean value of bobcat pelts was not significantly correlated with the number of bobcats registered.

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 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 to the NRC changes in bobcat harvest regulations. 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.

Changes in estimates between 2013 and 2014 should be viewed cautiously because Michigan experienced unseasonably cold temperatures and above normal snowfall during December 2013 through February 2014 (Midwestern Regional Climate Center 2014). These conditions probably affected hunting and trapping opportunities and indices of bobcat abundance derived from furtaker activity.

In 2014, the number of furtakers (hunters and trappers combined) participating in bobcat hunting and trapping seasons reached the highest level recorded during 2004 and 2014 (Figure 2). The increase during recent years was primarily driven by increased number of trappers. Although the number of furtakers peaked in 2014, the days spent hunting and trapping has lagged the increases in furtaker numbers because 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).

In 2014, the estimated number of bobcats registered by both hunters and trappers was near the average taken annually during 2003 and 2014 (Figure 2). In addition, the proportion of hunters and trappers registering a bobcat was near the average for 2003 to 2014. About 22% of bobcat hunters and trappers combined registered at least one bobcat in Michigan during the 2014 seasons, while 18-26% ($\overline{x}$ = 23%) of bobcat hunters and trappers harvested at least one bobcat in Michigan during the previous four years.

In 2014, the effort per registered bobcat decreased significantly among hunters in the UP and among trappers in the LP (Figure 7). The amount of effort per bobcat registered is a measure of how difficult it was to capture a bobcat and may be an indirect measure of the abundance of

bobcats. Decreasing estimates of effort per catch suggests more favorable conditions to capture bobcats that could include higher bobcat numbers.

Although nearly twice as many furtakers (hunters and trappers combined) pursued bobcats in the LP than in the UP, furtakers in the UP expended 11% more effort than their counterparts in the LP (Table 3). These differences between regions partly reflect differences in regulations as furtakers could legally harvest only one bobcat from the LP, while two bobcats could be taken from the UP. Moreover, seasons were longer in the UP than in the LP (Tables 1 and 2).

About 3 times more people attempted to hunt bobcats in the LP than in the UP in 2014 (Table 6), although the season was shorter in the LP (Tables 1 and 2). Hunters in the LP spent 2.2 times as many days hunting bobcats than their counterparts in the UP. Hunters in the LP 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 (16% and 17%) in the both the UP and LP.

Although there were nearly 1.4 times as many bobcat hunters as trappers in Michigan during the 2014 seasons (Tables 6 and 16), trappers registered about 1.1 times as many bobcats as hunters. Bobcat hunters devoted an average of 50.2 days of effort per bobcat registered, while trappers spent about 50.5 days of effort per bobcat registered. These estimates of effort per catch for hunters and trappers were not significantly different.

A higher proportion of hunters that used dogs were successful than hunters using calls, and the difference was significant (23% of hunters using dogs registered a bobcat versus 10% of hunters using calls, Table 10). Hunters using dogs have normally had significantly higher success than hunters using calls in Michigan (Frawley 2015). 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 12% of the bobcat trappers in Michigan released a bobcat from their traps set during the 2014 season, which was significantly greater than reported in 2013 (12.2% versus 9.3%, Frawley 2015). In comparison, 6-14% ($\bar{x}$ = 9%) of Wisconsin bobcat trappers released a bobcat from their traps during 2006-2014 in Wisconsin (e.g., Dhuey et al. 2015).

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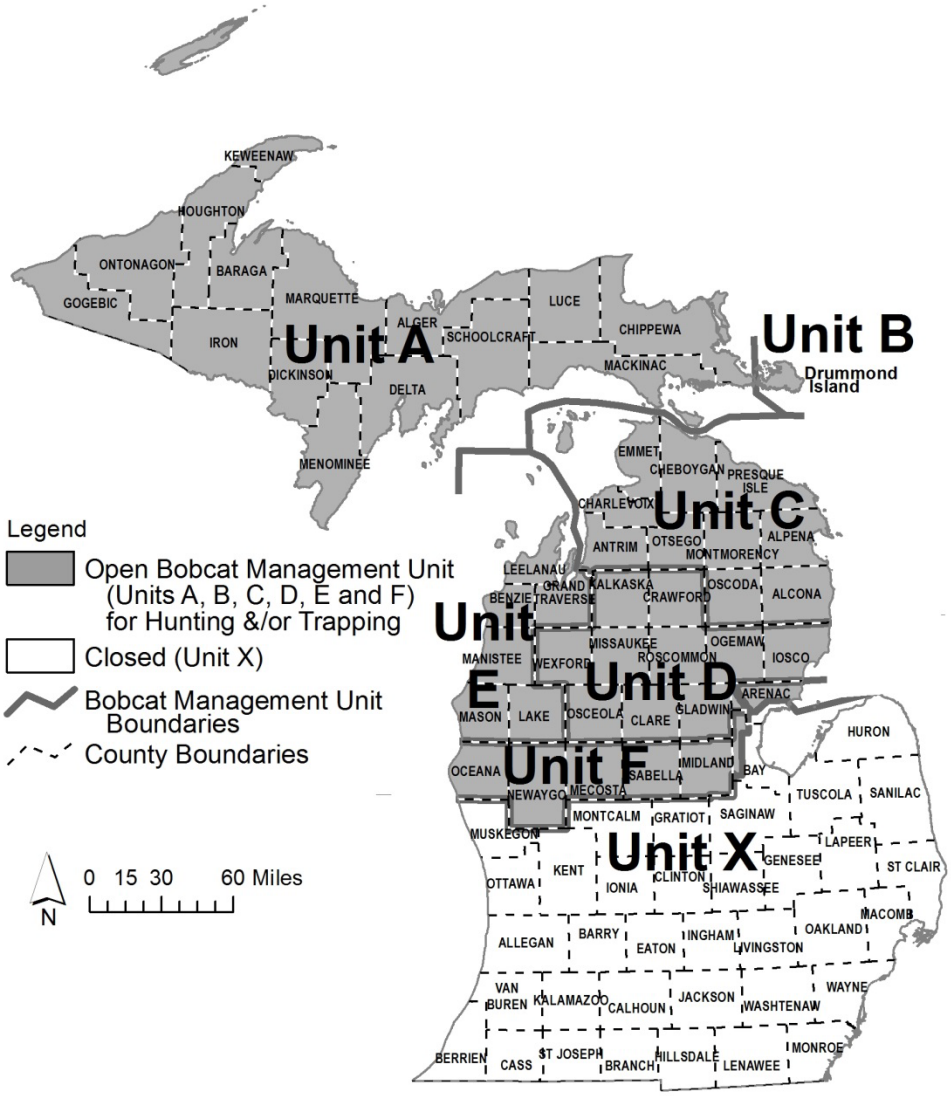

Figure 1. Bobcat Management Units in Michigan for the 2014 hunting and trapping seasons.

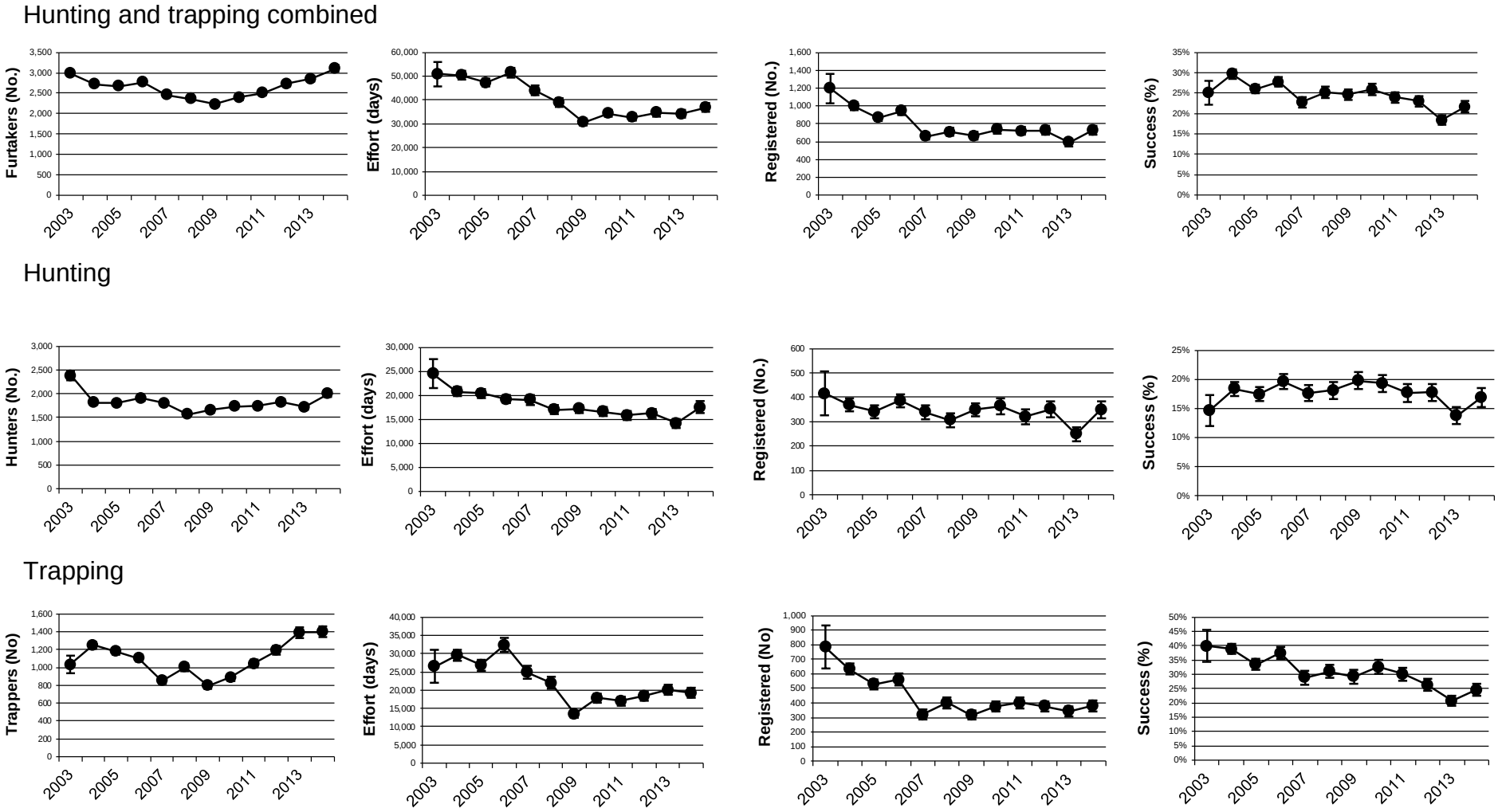

Figure 2. Number of furtakers pursuing bobcats, number of days of effort, number of bobcats registered, and proportion of furtakers registering a bobcat in Michigan during 2003-2014, summarized by method of take. Number of hunters and trappers does not add up to statewide total of hunters and trappers combined because a person could both hunt and trap bobcats. Vertical bars represent the 95% CL.

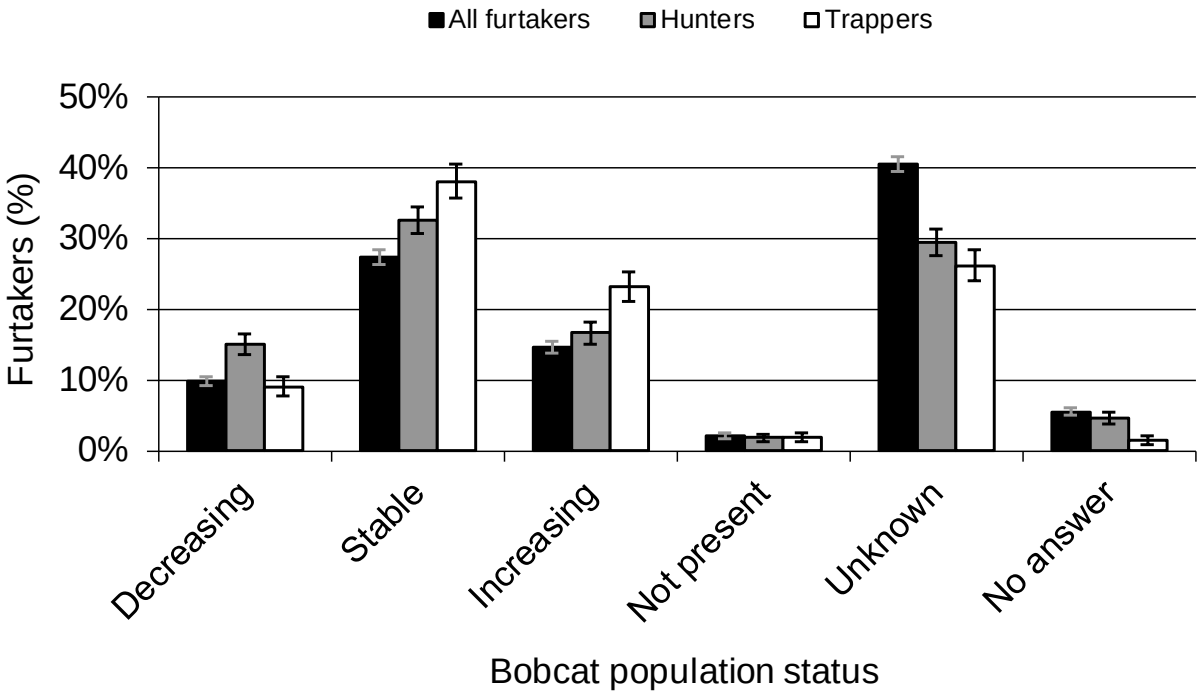

Figure 3. Status of bobcats in Michigan during 2014 as described by bobcat hunters and trappers. Vertical bars represent the 95% CL.

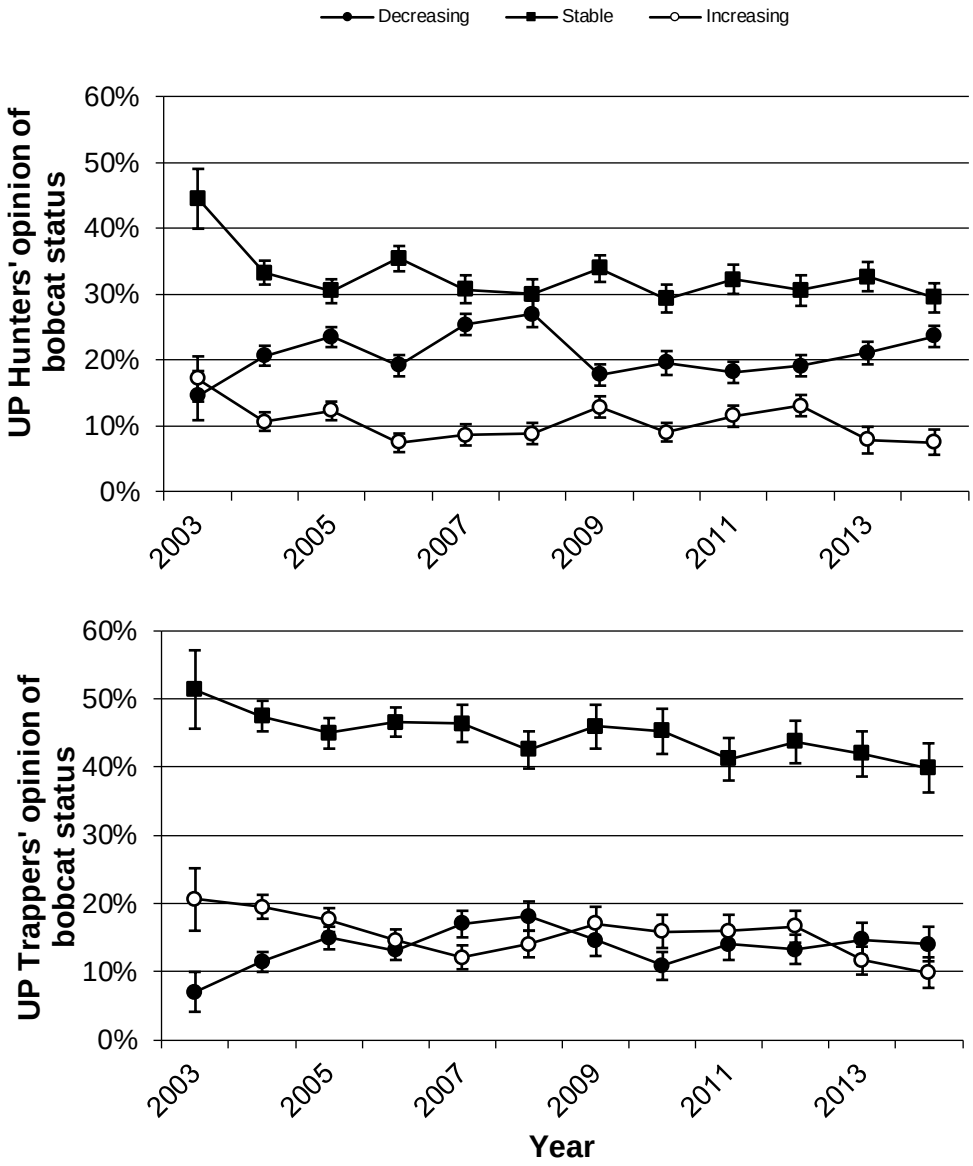

Figure 4. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Upper Peninsula, 2003-2014. Vertical bars represent the 95% CL.

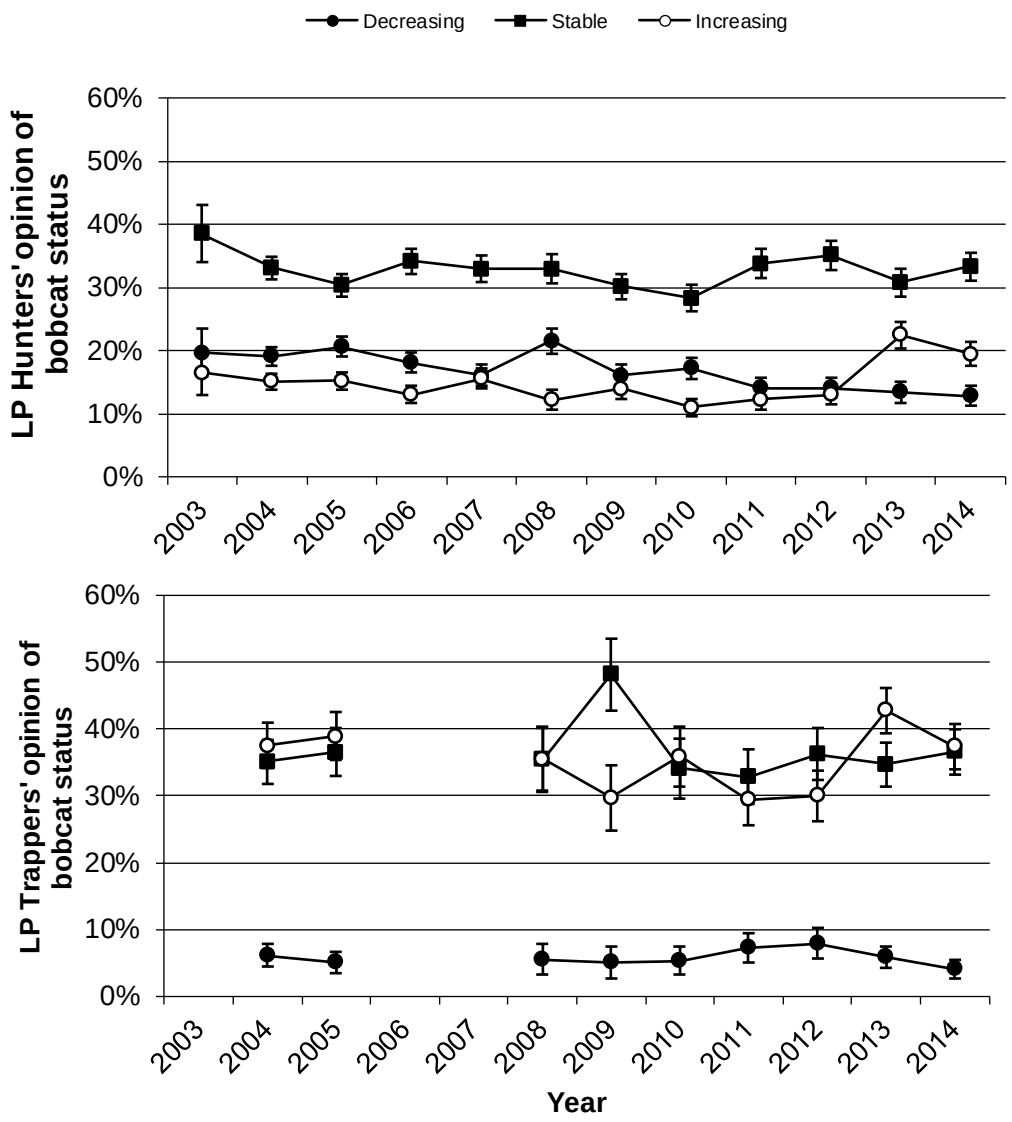

Figure 5. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Lower Peninsula, 2003-2014. Vertical bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2013 only.

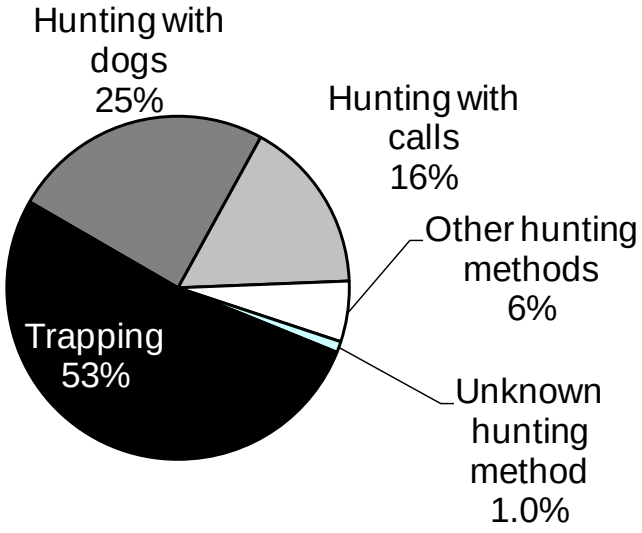

Figure 6. Proportion of bobcats registered in Michigan during 2014, summarized by method of take.

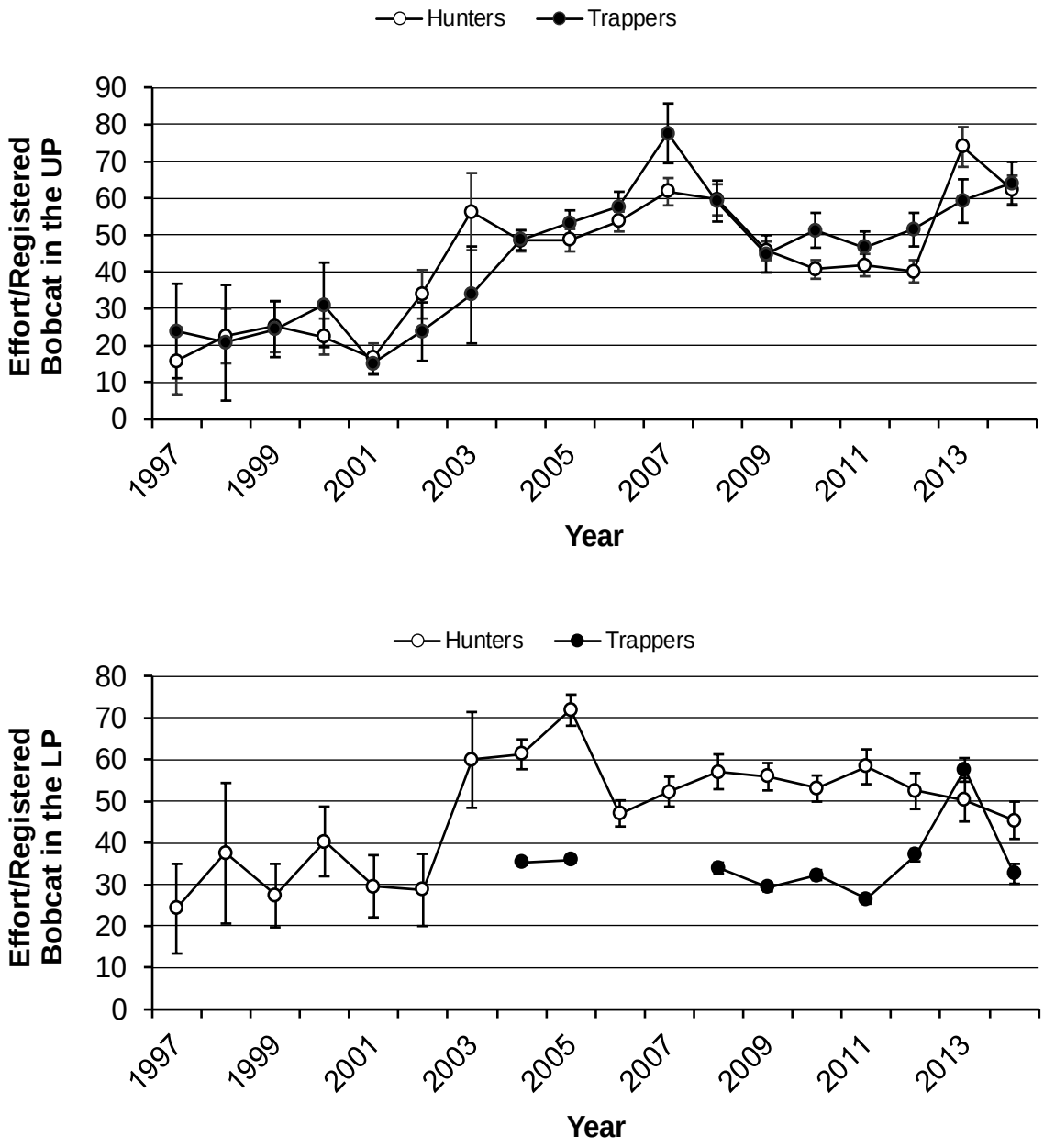

Figure 7. Estimated number of days of effort per bobcat registered in Michigan by hunters and trappers for the 1997-2014 seasons, summarized by region. Vertical error bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2014 only.

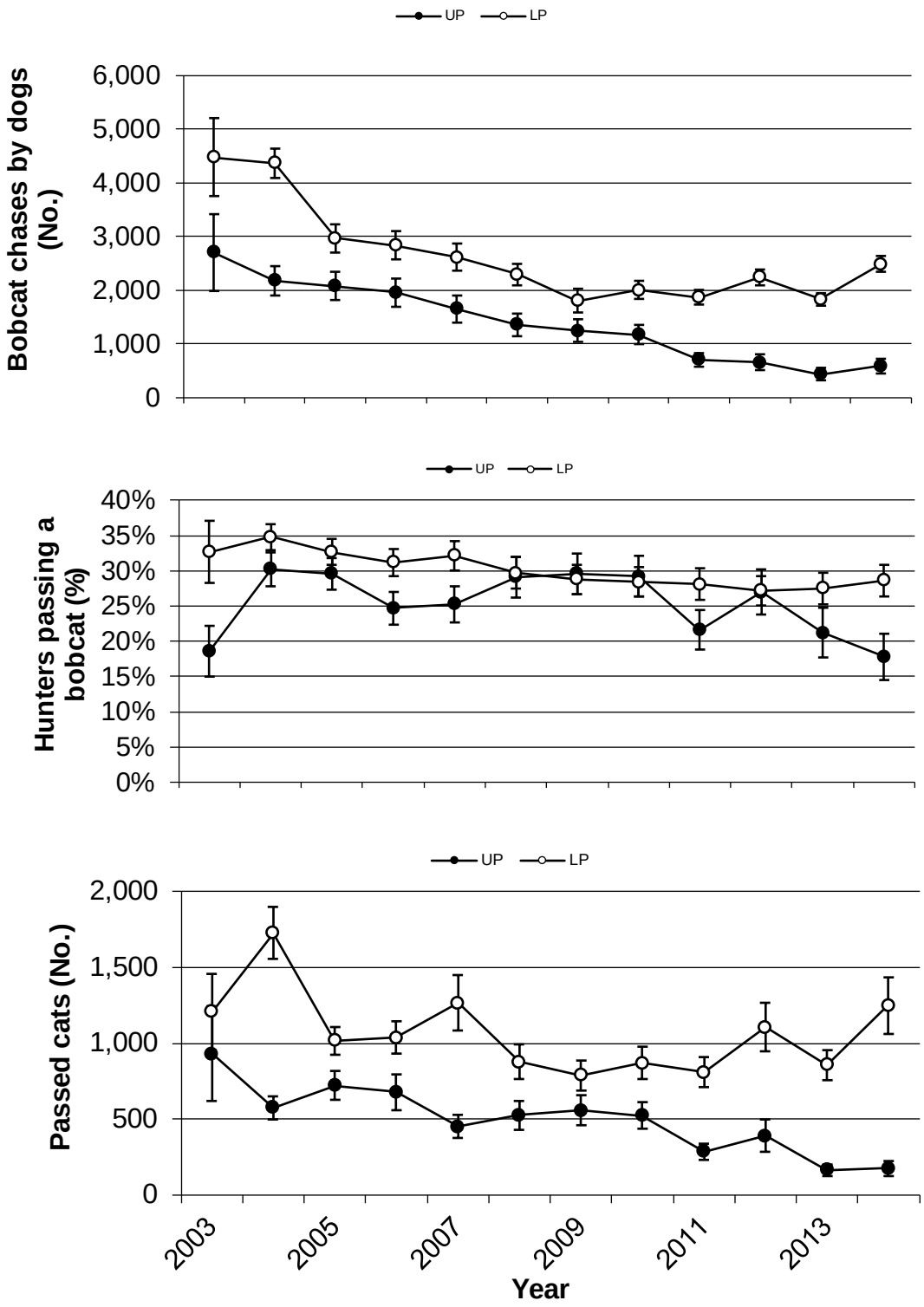

Figure 8. Number of bobcat chases by dogs, proportion of hunters passing a bobcat (bobcats within range or treed but not harvested), and number of bobcats passed by hunters (all types of hunting) in Michigan, 2003-2014. Vertical bars represent the 95% CL.

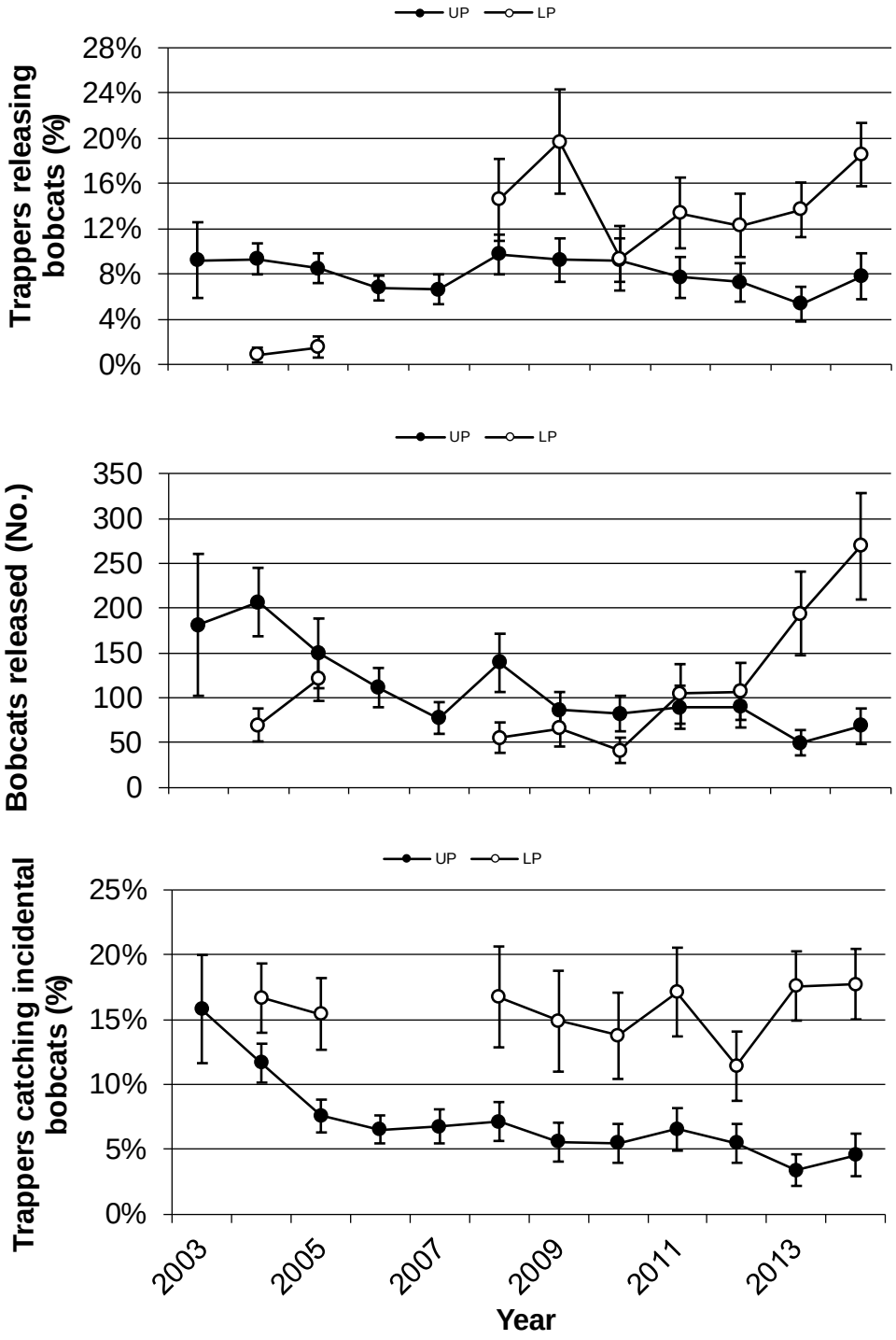

Figure 9. Number of trappers releasing bobcats from their traps, number of bobcats released from traps, and proportion of trappers that caught a bobcat in a trap set for another species (incidental catch) in Michigan, 2003-2014. Trapping of bobcat in the LP was permitted in 2004-2005 and 2008-2014 only. Vertical bars represent the 95% CL.

Table 1. Resident bobcat hunting season dates and seasonal bag limits in Michigan, 1989-2014.

		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]	
Year	Statewide bag limit[a]	Season dates	Bag limit[a]	Season dates	Bag limit[a]	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

[a]The 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).

[b]Excluded Drummond Island in the Upper Peninsula.

[c]Drummond Island only.

[d]During 1989-2014, Unit C included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2014.

[e]During 1989-2014, 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.

[f]Unit E included Leelanau, Benzie, Grand Traverse, Manistee, Mason, and Lake counties.

[g]Unit 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, 1989-2014.

		Bobcat management unit								
		Upper Peninsula				Lower Peninsula				
	State-	Unit A[b]		Unit B[c]		Unit C[d]	Unit D[e]	Unit E[f]	Unit F[g]	
Year	wide bag limit[a]	Season dates	Bag limit[a]	Season dates	Bag limit[a]	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

[a]The 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).

[b]Excluded Drummond Island in the Upper Peninsula.

[c]Drummond Island only.

[d]During 1989-2014, Unit C included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2014.

[e]During 1989-2014, 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.

[f]Unit E included Leelanau, Benzie, Grand Traverse, Manistee, Mason, and Lake counties.

[g]Unit 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 2013 and 2014, summarized by area.

	Furtakers[a]					Hunting and trapping effort				
	Year					Year				
	2013		2014		Change	2013		2014		Change
Area	No.	95 CL	No.	95 CL	(%)	Days	95 CL	Days	95 CL	(%)
Upper Peninsula	1,026	51	1,009	54	-2	20,298	1,515	19,055	1,637	-6
Lower Peninsula	1,722	61	2,038	70	18*	13,496	788	17,181	1,035	27*
Unit C	543	38	734	47	35*	4,911	547	7,018	785	43*
Unit D	690	43	780	49	13	4,805	441	5,777	513	20*
Unit E	281	28	376	35	34*	1,681	219	2,165	263	29*
Unit F	372	32	383	35	3	2,099	242	2,220	257	6
Unspecified	144	21	135	21	-7	393	133	571	224	45
Statewide	2,857	67	3,108	75	9*	34,187	1,637	36,807	1,886	8

[a]Number 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 2013 and 2014, summarized by area.

	Bobcats registered[a]					Furtakers registering a bobcat				
	Year					Year				
	2013		2014		Change	2013		2014		Difference
Area	No.	95 CL	No.	95 CL	(%)	%	95 CL	%	95 CL	(%)
Upper Peninsula	326	36	300	37	-8	26	2	25	3	-1
Lower Peninsula	256	27	425	37	66*	15	1	21	2	6*
Unit C	71	15	165	24	132*	13	3	22	3	9*
Unit D	92	17	133	21	44*	13	2	17	2	4
Unit E	48	12	59	14	22	17	4	16	3	-1
Unit F	44	11	68	15	54	12	3	18	4	6
Unspecified	11	7	6	4	-47	6	3	4	3	-2
Statewide	592	45	730	51	23*	18	1	22	1	3*

[a]Although 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 2014 in Michigan, summarized by county.

	Furtakers[a]		Hunting and trapping effort (days)		Bobcats registered		Furtakers that registered a bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	163	23	1,296	268	44	12	27	6
Alger	27	10	288	131	9	7	29	16
Alpena	112	19	1,004	251	21	8	19	7
Antrim	49	13	514	210	4	4	8	7
Arenac	25	9	82	38	8	5	31	17
Baraga	44	12	620	249	4	4	9	8
Bay	4	4	30	31	0	0	0	0
Benzie	27	10	165	68	4	4	14	13
Charlevoix	40	12	613	370	9	6	24	13
Cheboygan	82	17	761	208	19	8	23	9
Chippewa	87	17	1,461	395	25	12	20	8
Clare	112	19	772	180	13	7	12	6
Crawford	53	13	463	215	6	4	11	8
Delta	148	22	2,436	498	42	14	24	7
Dickinson	106	19	2,093	629	30	11	25	8
Emmet	42	12	294	109	13	7	32	13
Gladwin	53	13	334	115	2	3	4	5
Gogebic	85	17	1,558	458	27	11	27	9
Gd. Traverse	51	13	256	80	0	0	0	0
Houghton	47	13	596	210	8	6	12	9
Iosco	80	16	469	129	2	3	2	3
Iron	127	21	2,224	596	28	11	21	7
Isabella	68	15	317	94	4	4	6	5
Kalkaska	95	18	641	161	19	8	20	8
Keweenaw	17	8	256	138	6	6	22	19

[a]Number 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 2014 in Michigan, summarized by county.

	Furtakers[a]		Hunting and trapping effort (days)		Bobcats registered		Furtakers that registered a bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Lake	106	19	581	134	17	8	16	7
Leelanau	17	8	129	65	0	0	0	0
Luce	46	12	397	170	9	6	21	11
Mackinac	61	14	666	220	23	11	28	11
Manistee	95	18	526	127	15	7	16	7
Marquette	93	18	1,599	412	23	12	14	7
Mason	106	19	508	111	23	9	21	7
Mecosta	91	18	431	102	11	6	13	6
Menominee	131	21	2,375	524	25	10	17	6
Midland	38	11	222	80	8	5	20	12
Missaukee	112	19	543	134	21	8	19	7
Montmorency	135	21	801	181	19	8	14	6
Newaygo	116	20	738	148	27	10	23	7
Oceana	87	17	482	113	19	8	22	8
Ogemaw	78	16	577	146	23	9	29	10
Ontonagon	76	16	1,273	382	28	11	33	10
Osceola	72	16	674	182	2	3	3	4
Oscoda	97	18	662	179	15	7	16	7
Otsego	55	14	304	94	9	6	17	9
Presque Isle	106	19	770	171	11	6	11	6
Roscommon	127	21	696	153	23	9	18	6
Schoolcraft	78	16	1,212	350	13	7	17	8
Wexford	87	17	527	128	15	7	17	8
Unspecified	135	21	571	224	6	4	4	3

[a]Number 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 2013 and 2014, summarized by area.

	Hunters[a]					Hunting effort				
	Year					Year				
	2013		2014		Change	2013		2014		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	430	35	482	39	12	5,128	675	5,328	727	4
Lower Peninsula	1,258	55	1,524	63	21*	8,684	688	11,800	953	36*
Unit C	429	35	600	43	40*	3,718	493	5,715	756	54*
Unit D	527	38	626	44	19*	3,278	375	4,108	435	25*
Unit E	196	24	262	29	34*	765	123	1,148	172	50*
Unit F	222	25	228	28	2	923	165	829	131	-10
Unspecified	69	14	59	14	-15	350	127	412	196	17
Statewide	1,720	61	2,002	69	16*	14,163	955	17,539	1,226	24*

[a]Number 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 2013 and 2014, summarized by area.

	Bobcats passed[a]					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2013		2014			2013		2014			2013		2014		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	164	38	175	51	7	69	16	85	19	23	14	3	16	3	2
Lower Peninsula	856	97	1,248	186	46*	173	22	260	29	51*	14	2	17	2	3
Unit C	285	57	558	120	96*	53	13	118	20	120*	12	3	20	3	7*
Unit D	306	52	374	116	22	75	15	97	18	30	14	3	15	3	1
Unit E	109	28	156	39	43	23	8	25	9	7	12	4	9	3	-2
Unit F	157	42	161	57	3	21	8	21	8	-2	10	3	9	4	0
Unspecified	30	16	65	54	113	7	6	4	4	-47	8	6	6	6	-1
Statewide	1,049	106	1,488	227	42*	249	28	349	35	40*	14	1	17	2	3*

[a]An estimated 12 ± 8 bobcats were passed by hunters in areas not open for hunting during 2013; these passed bobcats were not included in statewide estimate.
*P<0.005.

Table 8. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2014, summarized by county.

	Hunters[a]		Hunting effort (days)		Bobcats passed by hunters[b]		Bobcats registered by hunters		Hunters that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Alcona	135	21	1,051	253	91	38	32	11	24	7
Alger	17	8	101	48	0	0	4	4	22	19
Alpena	99	18	852	240	121	53	17	8	17	7
Antrim	46	12	463	200	21	12	4	4	8	8
Arenac	17	8	38	19	4	4	4	4	22	19
Baraga	17	8	59	30	0	0	2	3	11	14
Bay	2	3	9	13	0	0	0	0	0	0
Benzie	21	8	99	42	23	12	2	3	9	12
Charlevoix	32	11	554	368	46	27	4	4	12	11
Cheboygan	72	16	649	191	93	41	17	8	24	9
Chippewa	36	11	277	128	28	27	4	4	11	9
Clare	80	16	453	137	11	7	6	4	7	5
Crawford	49	13	414	199	87	103	6	4	12	8
Delta	83	17	704	197	40	32	9	6	11	6
Dickinson	55	14	687	296	2	3	8	5	14	9
Emmet	30	10	209	97	8	6	6	4	19	13
Gladwin	36	11	218	100	13	8	2	3	5	7
Gogebic	46	12	304	104	21	13	13	8	25	12
Gd. Traverse	40	12	144	51	21	12	0	0	0	0
Houghton	15	7	116	83	2	3	0	0	0	0
Iosco	70	15	343	98	13	8	0	0	0	0
Iron	66	15	601	246	15	9	6	4	9	6
Isabella	49	13	140	44	21	13	4	4	8	7
Kalkaska	83	17	505	140	38	17	17	8	20	8
Keweenaw	8	5	57	43	2	3	0	0	0	0

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
[b]Bobcats that hunter could have harvested but chose not to take.

Table 8. (Continued) Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2014, summarized by county.

	Hunters[a]		Hunting effort (days)		Bobcats passed by hunters[b]		Bobcats registered by hunters		Hunters that registered at least one bobcat	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL
Lake	68	15	300	88	42	17	6	4	8	6
Leelanau	13	7	82	46	6	8	0	0	0	0
Luce	28	10	167	89	2	3	2	3	7	9
Mackinac	34	11	237	113	15	10	6	4	17	12
Manistee	61	14	269	85	46	22	8	5	13	8
Marquette	46	12	520	197	9	9	11	8	17	10
Mason	74	16	254	64	19	11	9	6	13	7
Mecosta	53	13	180	58	30	25	0	0	0	0
Menominee	82	17	837	233	11	11	11	6	14	7
Midland	17	8	57	30	6	8	0	0	0	0
Missaukee	99	18	400	105	44	19	15	7	15	7
Montmorency	116	20	634	164	93	37	17	8	15	6
Newaygo	65	15	250	72	57	25	8	5	12	7
Oceana	55	14	192	58	47	33	9	6	17	9
Ogemaw	66	15	446	127	40	16	17	8	26	10
Ontonagon	34	11	273	111	11	10	6	4	17	12
Osceola	55	14	391	127	55	25	2	3	3	5
Oscoda	78	16	467	160	17	10	9	6	12	7
Otsego	42	12	201	75	17	13	8	5	18	11
Presque Isle	91	18	636	157	51	22	4	4	4	4
Roscommon	110	19	505	128	36	17	17	8	16	6
Schoolcraft	36	11	389	169	15	11	4	4	11	9
Wexford	70	15	395	112	32	15	11	6	16	8
Unspecified	59	14	412	196	65	54	4	4	6	6

[a]Number of hunters does not add up to statewide total because hunters could hunt in more than one area.
[b]Bobcats that hunter could have harvested but chose not to harvest.

Table 9. Estimated number of days of effort per bobcat registered by hunters in Michigan during 2012-2014, summarized by year and area.

Area	Year 2012 Effort per registered bobcat	2012 95% CL	2013 Effort per registered bobcat	2013 95% CL	2014 Effort per registered bobcat	2014 95% CL	Change between 2013 and 2014 (%)
Upper Peninsula	40.1	3.0	73.9	5.4	62.4	3.9	-16*
Lower Peninsula	52.5	4.3	50.3	5.4	45.4	4.5	-10
Unit C	57.7	3.5	69.7	4.1	48.6	3.4	-30*
Unit D	46.3	2.4	43.9	3.0	42.5	2.4	-3
Unit E			33.1	1.3	46.5	1.4	41*
Unit F			43.3	1.7	39.7	1.0	-8*
Unspecified	24.4	0.6	49.3	1.4	108.5	1.3	120*
Statewide	46.4	5.4	56.9	7.6	50.2	6.1	-12

*P<0.005. Comparison between 2013 and 2014.

Table 10. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2014, summarized by hunting method and area.

	Hunting method							
	Dogs		Calls		Other		Unknown	
Variable and area	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunters (No.)[a]								
UP	144	22	302	31	78	16	8	5
LP	619	44	869	51	133	21	27	10
Unit C	287	31	311	32	42	12	11	6
Unit D	252	29	357	34	44	12	8	5
Unit E	93	18	156	23	25	9	2	3
Unit F	82	17	125	21	25	9	8	5
Unspecified	34	11	17	8	2	3	8	5
Statewide	755	48	1,167	57	213	27	40	12
Hunting effort (Days)								
UP	1,636	366	2,429	366	1,154	406	110	91
LP	5,721	775	5,064	470	844	180	171	89
Unit C	3,170	609	2,110	360	328	123	106	75
Unit D	1,746	303	2,002	267	315	114	46	38
Unit E	452	126	560	98	135	58	2	3
Unit F	353	98	393	79	66	31	17	13
Unspecified	231	117	161	109	6	8	13	18
Statewide	7,588	888	7,654	612	2,004	443	294	131
Bobcats passed by hunters (No.)								
UP	99	43	65	21	11	6	0	0
LP	884	161	294	56	57	28	13	18
Unit C	393	111	121	34	30	25	13	18
Unit D	254	85	110	40	9	7	0	0
Unit E	95	33	46	18	15	10	0	0
Unit F	142	56	17	11	2	3	0	0
Unspecified	40	32	23	24	2	3	0	0
Statewide[b]	1,023	184	381	76	70	29	13	18

[a]Number 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 2014, summarized by hunting method and area.

Variable and area	Hunting method: Dogs Estimate	Dogs 95% CL	Calls Estimate	Calls 95% CL	Other Estimate	Other 95% CL	Unknown Estimate	Unknown 95% CL
Bobcats registered by hunters (No.)								
UP	36	12	38	13	9	6	2	3
LP	140	22	82	17	32	11	6	4
Unit C	68	15	32	11	15	7	2	3
Unit D	46	12	40	12	9	6	2	3
Unit E	13	7	8	5	4	4	0	0
Unit F	13	7	2	3	4	4	2	3
Unspecified	4	4	0	0	0	0	0	0
Statewide	180	25	120	21	42	12	8	5
Hunters that registered at least one bobcat (%)								
UP	24	7	11	3	12	7	25	29
LP	23	3	9	2	24	7	21	15
Unit C	24	5	10	3	36	14	17	21
Unit D	18	4	11	3	22	12	25	29
Unit E	14	7	5	3	15	13	0	0
Unit F	16	8	2	2	15	13	25	29
Unspecified	11	10	0	0	0	0	0	0
Statewide	23	3	10	2	20	5	19	12

[a]Number 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 2013 and 2014, summarized by area.

	Hunters using dogs[a]					Hunting effort				
	Year					Year				
	2013		2014		Change	2013		2014		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	135	20	144	22	7	1,843	500	1,636	366	-11
Lower Peninsula	516	38	619	44	20*	4,324	550	5,721	775	32*
Unit C	183	23	287	31	56*	1,966	385	3,170	609	61*
Unit D	249	27	252	29	1	1,683	295	1,746	303	4
Unit E	73	15	93	18	27	301	79	452	126	50
Unit F	80	15	82	17	2	375	105	353	98	-6
Unspecified	39	11	34	11	-13	201	110	231	117	15
Statewide	663	42	755	48	14*	6,368	751	7,588	888	19

[a]Number 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 2013 and 2014, summarized by area.

	Bobcats passed[a]					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2013		2014			2013		2014			2013		2014		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	62	23	99	43	58	25	9	36	12	45	17	6	24	7	7
Lower Peninsula	473	76	884	161	87*	82	16	140	22	72*	16	3	23	3	7*
Unit C	171	46	393	111	130*	28	9	68	15	140*	16	5	24	5	8
Unit D	197	44	254	85	29	41	11	46	12	11	16	4	18	4	2
Unit E	41	17	95	33	132*	5	4	13	7	149	7	5	14	7	7
Unit F	64	27	142	56	122	7	5	13	7	87	9	6	16	8	7
Unspecified	28	16	40	32	40	7	6	4	4	-47	14	9	11	10	-3
Statewide	564	82	1,023	184	81*	114	19	180	25	58*	16	2	23	3	7*

[a]An estimated 3 ± 4 bobcats were passed by hunters in areas not open for hunting during 2013; these passed bobcats were not included in statewide estimate.
*P<0.005.

Table 13. Estimated number of bobcat hunters using calls and their hunting effort (days) in Michigan for 2013 and 2014, summarized by area.

	Hunters using calls[a]					Hunting effort				
	Year					Year				
	2013		2014		Change	2013		2014		Change
Area	No.	95% CL	No.	95% CL	(%)	Days	95% CL	Days	95% CL	(%)
Upper Peninsula	258	27	302	31	17	2,513	358	2,429	366	-3
Lower Peninsula	688	43	869	51	26*	3,600	370	5,064	470	41*
Unit C	226	26	311	32	38*	1,436	273	2,110	360	47*
Unit D	258	27	357	34	38*	1,339	199	2,002	267	49*
Unit E	119	19	156	23	31	384	74	560	98	46*
Unit F	126	19	125	21	-1	441	93	393	79	-11
Unspecified	20	8	17	8	-13	123	57	161	109	31
Statewide	959	49	1,167	57	22*	6,237	515	7,654	612	23*

[a]Number 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 2013 and 2014, summarized by area.

	Bobcats passed					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2013		2014			2013		2014			2013		2014		Differ-
Area	No.	95% CL	No.	95% CL	Change (%)	No.	95% CL	No.	95% CL	Change (%)	%	95% CL	%	95% CL	ence (%)
Upper Peninsula	82	25	65	21	-21	32	10	38	13	19	12	3	11	3	0
Lower Peninsula	315	55	294	56	-7	66	14	82	17	24	10	2	9	2	0
Unit C	96	32	121	34	26	18	7	32	11	81	8	3	10	3	2
Unit D	92	26	110	40	19	23	8	40	12	72	9	3	11	3	2
Unit E	46	17	46	18	-2	14	7	8	5	-47	12	5	5	3	-7
Unit F	80	30	17	11	-79*	11	6	2	3	-82*	8	4	2	2	-7*
Unspecified	2	2	23	24	1180	0	0	0	0		0	0	0	0	0
Statewide	398	60	381	76	-4	98	18	120	21	22	10	2	10	2	0

*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 1997-2014, summarized by region.[a]

Estimate and region	Correlation[b]	Significance (P-value)[c]
Number of hunters		
UP	0.24	0.34
LP	0.33	0.18
Days of effort		
UP	0.35	0.16
LP	0.37	0.13
Bobcats registered[d]		
UP	-0.48	0.04
LP	-0.14	0.59
Effort per bobcats registered		
UP	0.49	0.04
LP	0.61	0.01

[a]Mean pelt prices were the average paid in Minnesota and Wisconsin (e.g., Abraham and Dexter 2015, Rees 2015). Pelt prices were reported in 2014 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2015***)***.
[b]Pearson product moment correlation coefficient.
[c]P-value is the probability of obtaining this correlation result (2-sided test).
[d]The 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 2013 and 2014, summarized by area.

	Trappers[a]					Trapping effort				
	Year					Year				
	2013		2014		Change	2013		2014		Change
Area	No.	95% CL	No.	95% CL	(%)[b]	Days	95% CL	Days	95% CL	(%)[b]
Upper Peninsula	687	43	634	44	-8	15,170	1,308	13,727	1,316	-10
Lower Peninsula	635	41	694	46	9	4,812	366	5,381	410	12
Unit C	151	21	173	24	14	1,194	189	1,303	201	9
Unit D	196	24	213	27	9	1,526	217	1,670	229	9
Unit E	126	19	139	22	10	916	156	1,017	181	11
Unit F	180	23	192	25	7	1,176	168	1,391	204	18
Unspecified	78	15	80	16	2	43	40	159	110	273
Statewide	1,389	57	1,398	62	1	20,024	1,337	19,268	1,359	-4

[a]Number of trappers does not add up to statewide total because trappers could trap in more than one area.
*P<0.005.

Table 17. Estimated number of bobcats captured, bobcats released alive, and bobcats registered by trappers in Michigan for 2013 and 2014, summarized by area.

	Bobcats captured					Bobcats released alive					Bobcats registered				
	Year					Year					Year				
	2013		2014			2013		2014			2013		2014		
Area	No.	95% CL	No.	95% CL	Change (%)[a]	No.	95% CL	No.	95% CL	Change (%)[a]	No.	95% CL	No.	95% CL	Change (%)[a]
Upper Peninsula	306	38	283	42	-8%	50	15	68	20	37	256	32	214	31	-16
Lower Peninsula	277	52	434	68	57*	194	47	269	59	39	84	16	165	24	97*
Unit C	52	17	110	31	113*	34	15	63	25	85	18	7	47	13	167*
Unit D	92	31	131	45	42	75	30	95	42	27	18	7	36	11	103
Unit E	80	33	89	31	11	55	30	55	27	0	25	9	34	11	37
Unit F	53	16	104	26	96*	30	13	57	19	88	23	8	47	13	105*
Unspecified	4	3	9	11	167	0	0	8	10		4	3	2	3	-47
Statewide	587	64	727	80	24	244	49	345	63	42	343	36	381	39	11

*P<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 2013 and 2014, summarized by area.

	Trappers that captured a bobcat					Trappers that registered a bobcat				
	Year					Year				
	2013		2014		Difference	2013		2014		Difference
Area	%	95% CL	%	95% CL	(%)	%	95% CL	%	95% CL	(%)[a]
Upper Peninsula	32	3	30	3	-2	30	3	28	3	-1
Lower Peninsula	25	3	36	3	11*	13	2	24	3	11*
Unit C	24	6	36	7	13	12	5	27	6	16*
Unit D	23	5	29	6	7	9	4	17	5	8
Unit E	32	7	37	8	5	20	6	25	7	5
Unit F	22	5	39	7	17*	13	4	25	6	12*
Unspecified	5	4	5	4	0	5	4	2	3	-2
Statewide	27	2	31	2	4	21	2	25	2	4

*P<0.005.

Table 19. Estimated number of days of effort per bobcat registered in Michigan by trappers for the 2012-2014, summarized by year and area.

	Year						
	2012		2013		2014		
Area	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Change between 2013 and 2014 (%)
Upper Peninsula	51.5	4.6	59.2	6.0	64.0	5.9	8
Lower Peninsula	37.1	1.6	57.6	2.9	32.6	2.3	-43*
Unit C	42.6	1.2	67.1	1.5	27.5	1.0	-59*
Unit D	33.4	1.1	85.8	2.0	46.3	1.5	-46*
Unit E			36.8	1.0	29.8	1.0	-19*
Unit F			50.8	1.4	29.3	1.1	-42*
Unspecified	0.0	0.5	12.0	0.0	84.0	0.6	600*
Statewide	48.9	4.9	58.3	6.7	50.5	6.1	-13

*P<0.005. Comparison between 2013 and 2014.

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 2014, summarized by 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	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL
Alcona	40	12	245	81	11	6	0	0	11	6	29	13	29	13
Alger	15	7	188	113	6	4	0	0	6	4	38	23	38	23
Alpena	21	8	152	66	6	4	2	3	4	4	27	18	18	16
Antrim	8	5	51	41	0	0	0	0	0	0	0	0	0	0
Arenac	9	6	44	30	4	4	0	0	4	4	40	30	40	30
Baraga	28	10	562	246	8	6	6	6	2	3	20	14	7	9
Bay	2	3	21	28	2	3	2	3	0	0	100	0	0	0
Benzie	8	5	66	47	4	4	2	3	2	3	50	34	25	29
Charlevoix	8	5	59	42	8	6	2	3	6	4	75	29	75	29
Cheboygan	13	7	112	60	9	13	8	10	2	3	14	18	14	18
Chippewa	63	15	1,184	355	23	11	2	3	21	11	24	10	24	10
Clare	42	12	319	101	9	7	2	3	8	5	18	11	18	11
Crawford	8	5	49	36	4	5	4	5	0	0	25	29	0	0
Delta	82	17	1,732	435	51	20	19	11	32	12	37	10	33	10
Dickinson	65	15	1,406	421	25	11	2	3	23	10	32	11	32	11
Emmet	11	6	85	50	9	7	2	3	8	5	67	26	67	26
Gladwin	17	8	116	56	2	3	2	3	0	0	11	14	0	0
Gogebic	46	12	1,254	434	15	9	2	3	13	8	25	12	25	12
Gd. Traverse	13	7	112	60	2	3	2	3	0	0	14	18	0	0
Houghton	34	11	480	187	9	8	2	3	8	6	17	12	17	12
Iosco	17	8	125	59	2	3	0	0	2	3	11	14	11	14
Iron	72	16	1,622	463	34	15	11	9	23	10	32	10	29	10
Isabella	27	10	176	70	2	3	2	3	0	0	7	9	0	0
Kalkaska	19	8	137	65	11	8	9	8	2	3	40	21	10	13
Keweenaw	11	6	199	124	6	6	0	0	6	6	33	26	33	26

[a]Number 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 2014, summarized by 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	
County	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	%	95% CL
Lake	42	12	281	91	17	8	6	6	11	6	36	14	27	13
Leelanau	6	4	47	39	0	0	0	0	0	0	0	0	0	0
Luce	21	8	230	115	9	7	2	3	8	5	36	20	36	20
Mackinac	32	11	429	170	28	17	11	8	17	10	41	16	35	16
Manistee	40	12	256	83	23	13	15	12	8	5	33	14	19	12
Marquette	55	14	1,080	356	11	9	0	0	11	9	10	8	10	8
Mason	40	12	254	82	44	24	30	20	13	7	48	15	33	14
Mecosta	40	12	250	82	17	8	6	4	11	6	43	15	29	13
Menominee	66	15	1,539	436	17	8	4	5	13	7	23	10	20	9
Midland	23	9	165	70	9	6	2	3	8	5	42	19	33	18
Missaukee	19	8	142	64	6	4	0	0	6	4	30	20	30	20
Montmorency	23	9	167	71	6	6	4	5	2	3	17	15	8	11
Newaygo	66	15	488	119	46	19	27	14	19	8	40	11	29	10
Oceana	44	12	290	88	28	14	19	12	9	6	39	14	22	12
Ogemaw	13	7	131	67	28	19	23	15	6	4	71	23	43	25
Ontonagon	44	12	1,000	366	27	13	4	4	23	10	43	14	43	14
Osceola	30	10	283	97	4	4	4	4	0	0	13	11	0	0
Oscoda	27	10	195	76	27	15	21	14	6	4	50	18	21	15
Otsego	15	7	102	54	9	13	8	10	2	3	13	16	13	16
Presque Isle	17	8	135	63	25	16	17	13	8	5	67	21	44	22
Roscommon	23	9	192	81	53	37	47	37	6	4	67	18	25	17
Schoolcraft	49	13	823	279	13	8	4	4	9	6	19	10	19	10
Wexford	19	8	133	59	8	6	4	4	4	4	30	20	20	17
Unspecified	80	16	159	110	9	11	8	10	2	3	5	4	2	3

[a]Number 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 2014.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	85	2	1,188	58
Conibears	29	2	402	36
Other[a]	3	1	36	11

[a]Included 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 2014.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	58	2	804	49
Conibears	19	2	269	30
No preference	18	2	249	29
Other[a]	2	1	23	9
No answer	4	1	53	13

[a]Snares 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 1997-2014, summarized by region.[a]

Estimate and region	Correlation[b]	Significance (P-value)[c]
Number of trappers		
UP	0.61	0.01
LP[d]	0.18	0.62
Days of effort		
UP	0.57	0.01
LP[d]	0.18	0.65
Bobcats registered[e]		
UP	-0.01	0.97
LP[d]	0.59	0.14
Effort per bobcats registered		
UP	0.49	0.04
LP[d]	0.26	0.51

[a]Mean pelt prices were the average paid in Minnesota and Wisconsin (e.g., Abraham and Dexter 2015, Rees 2015). Pelt prices were reported in 2014 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2015).
[b]Pearson product moment correlation coefficient.
[c]P-value is the probability of obtaining this correlation result (2-sided test).
[d]Bobcat could be harvested by trappers in the LP during 2004-2005 and 2008-2014 only.
[e]The 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 2014 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 2014-15 hunting and trapping seasons (December 1, 2014, through March 1, 2015).
- 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 2014-15 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 2014-15 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 not to harvest.)
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				
1 ☐ Dogs 2 ☐ Calls 3 ☐ Other				

4. On what lands did you hunt bobcats during the 2014-15 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 hunt bobcats with dogs during the 2014-15 season?

1 ☐ Yes 2 ☐ No (*Skip to Question #9*)

6. Who owned the dogs that you used to hunt bobcats during the 2014-15 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.

Continued on next page

7. **Report the number of bobcat chases with dogs you participated in during the 2014-15 season.** _____ Chases

8. **Did you hire a guide to assist with hunting bobcats at any time during the 2014-15 season?** 1 ☐ Yes 2 ☐ No

PART B: Trapping Questions

9. **Did you attempt to harvest a bobcat while trapping in the 2014-15 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 2014-15 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 2014-15 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 2014-15 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 2014-15 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 2014-15 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.**

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

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