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2011 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 2011, 4,524 people obtained a bobcat harvest tag valid for the hunting and trapping seasons (8% greater than in 2010). About 55% (2,501) of these tag-holders attempted to hunt or trap bobcats, and 24% of these furtakers registered at least one bobcat. An estimated 1,739 people attempted to hunt bobcats and spent 15,844 days hunting and registered 320 bobcats. Nearly 1,043 people attempted to trap bobcats and spent nearly 16,948 days trapping and registered 401 bobcats. The number of hunters and trappers combined increased significantly by 5% statewide between 2010 and 2011; however, hunting and trapping effort and the number of bobcat taken between 2010 and 2011 was not significantly different. Between 1997 and 2007, the days of effort required by furtakers to harvest a bobcat in both the UP and LP increased significantly. During the last three years, however, the effort per registered bobcat has declined in the UP. The measure of effort per bobcat registered is an indirect measure of the abundance of bobcats. Changes in the effort per registered bobcats are inferred to signify changes in bobcat numbers. Decreasing effort per catch in the UP implies increasing bobcat numbers in the UP during the last few years. In contrast, an unchanging effort per catch in the LP indicates stable bobcat numbers in the LP.



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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 2011, bobcats could be harvested during both hunting and trapping seasons (Tables 1 and 2). The length of the hunting and trapping seasons were the same as in 2010. In order to hunt or trap bobcats, furtakers were required to obtain a free bobcat harvest tag, in addition to a fur harvester license. 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 C or D combined (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 and 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.

Prior to 2004, only hunters were allowed to harvest a bobcat in the LP, as bobcat trapping was restricted to the UP (Tables 1 and 2). During 2004-2005 and 2008-2011, an 11-day bobcat trapping season (December 10-20) was held on private lands in portions of the LP.

In 2011, trappers could use foothold and body-gripping traps (i.e., conibears) to capture bobcats in the UP and foothold traps only in the LP. Live traps were also legal if set within 150 yards of a residence or farm building. Bobcat trapping was permitted on both public and private lands. Most hunters traditionally used calls or dogs to take bobcats (Frawley 2012).

METHODS

A questionnaire was sent to everyone who obtained a bobcat harvest tag holders in 2011 (4,524 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 mid-March 2012, and nonrespondents were mailed up to two follow-up questionnaires. Although 4,524 people were sent the questionnaire, 90 surveys were undeliverable, resulting in an adjusted sample size of 4,434. Questionnaires were returned by 2,684 people, yielding a 61% 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 2011, 4,524 people obtained a bobcat harvest tag valid for the bobcat hunting and trapping seasons, which was 8% greater than in 2010 (4,208 people obtained a tag in 2010). About $55 \pm 1\%$ (2,501) of these tag holders attempted to hunt or trap bobcats (Table 3). Furthermore, about $6 \pm 1\%$ (281 ± 26) of the tag holders attempted both hunting and trapping bobcats.

Furtakers spent 32,792 days afield ($\bar{x} = 13.1 \pm 0.5$ days/furtaker) and registered 721 bobcats ($\bar{x} = 0.29 \pm 0.02$ bobcats/furtaker). Furtakers spent about 20,646 days afield pursuing bobcats in the UP and 11,553 days in the LP (Table 3). About 24% of the furtakers registered at least one bobcat (Table 4). Nearly $19 \pm 1\%$ of the furtakers registered only one bobcat and $5 \pm 1\%$ registered two bobcats. About 31% of the furtakers in the UP registered at least one bobcat (Table 4). Nearly $21 \pm 2\%$ of the UP furtakers registered only one bobcat and $10 \pm 1\%$ registered two bobcats. An estimated 18% of furtakers in the LP registered a bobcat.

The number of furtakers increased significantly by 5% statewide between 2010 and 2011; however, their effort and the number of bobcat taken between 2010 and 2011 were not significantly different statewide (Tables 3-4, Figure 2). Furthermore, the number of furtakers, their effort, and their harvest were not significantly different between 2010 and 2011 for any of the regions.

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

About $31 \pm 1\%$ of furtakers reported the bobcat population was stable in the county they preferred to hunt or trap bobcats, which was similar to the 2010 estimate (Figures 3-5). About $12 \pm 1\%$ reported bobcat numbers were improving and $11 \pm 1\%$ reported fewer bobcats. Nearly $38 \pm 1\%$ of the tag-holders were uncertain of the status of bobcats.

Hunting

About $38 \pm 1\%$ (1,739 hunters) of the tag-holders attempted to hunt bobcats during the 2011 seasons (Table 6). About 585 furtakers hunted in the UP and 1,128 hunted in the LP. These hunters had hunted bobcats an average of 7.9 years (± 0.4 year). Bobcat hunters most frequently hunted on public land ($66 \pm 2\%$). About $40 \pm 2\%$ of the hunters hunted on private land not owned by themselves or their family, while $41 \pm 2\%$ hunted bobcats on their own land or land owned by their family. Nearly $30 \pm 2\%$ of the hunters hunted on public land only, $33 \pm 2\%$ hunted on private land only, and $36 \pm 2\%$ hunted on both public and private lands.

Hunters spent about 15,844 days afield hunting bobcats ($\bar{x} = 9.1 \pm 0.4$ days/hunter) and registered an estimated 320 bobcats ($\bar{x} = 0.18 \pm 0.02$ bobcats/hunter, Table 7). Hunters spent about 6,198 days afield hunting bobcats in the UP and 9,136 days hunting bobcats in the LP. The estimated number of days of effort per bobcat registered by hunters statewide was 49.5 days in 2011.

Hunters registered about 44% of the bobcats registered by furtakers (Figure 6). About 18% of bobcat hunters harvested at least one bobcat (Table 7). Nearly $17 \pm 1\%$ of hunters registered only one bobcat and $1 \pm 0.3\%$ registered two bobcats. An estimated 24% of the hunters in the UP registered at least one bobcat; $22 \pm 3\%$ of UP hunters registered one bobcat and $1 \pm 1\%$ registered two bobcats. An estimated 14% of hunters in the LP registered a bobcat.

Counties with 100 or more hunters pursuing bobcats included Montmorency, Oscoda, and Alcona (Table 8). Counties with more than 15 hunter-registered bobcats originating from that county included Delta, Menominee, Montmorency, Alcona, and Gogebic.

The number of hunters statewide and their hunting effort did not change significantly between 2010 and 2011 (Table 6). The number of bobcats passed by hunters and bobcats registered by hunters did not change significantly statewide between 2010 and 2011. However, the number of bobcats passed by hunters decreased significantly in the UP. The number of days of effort per bobcat registered by hunters statewide (49.5) was not statistically different from estimates for 2010 (Table 9, Figure 7).

Hunters most frequently used calls ($63 \pm 2\%$) or dogs ($33 \pm 2\%$) to hunt bobcats (Table 10). The estimated number of people hunting bobcats with dogs statewide declined significantly by 12% between 2010 and 2011 (Table 11). Hunting effort, bobcats passed, hunter success and the number of bobcats registered by hunters using dogs also decreased significantly statewide (Tables 11 and 12). The estimated number of people hunting bobcats with calls statewide did not differ significantly between 2010 and 2011 (Table 13). Among hunters using calls, the

number of bobcats registered and the proportion of hunters registering a bobcat also did not change significantly statewide between 2010 and 2011 (Table 14).

Bobcat hunters using dogs participated in an estimated $2,658 \pm 312$ chases of bobcats statewide during the open season, which was similar to the estimate for 2010 (Figure 8). However, chases by hunters using dogs in the UP declined significantly by 40%. About $27 \pm 2\%$ of the bobcat hunters had an opportunity to harvest a bobcat but chose not to harvest the bobcat. Thus, an estimated 467 ± 33 hunters chose not to harvest bobcats on $1,209 \pm 128$ occasions (Figure 8). Among those hunters that passed up an opportunity to take a bobcat, $43 \pm 4\%$ passed one bobcat, $26 \pm 3\%$ passed two bobcats, $11 \pm 2\%$ passed three bobcats, $6 \pm 2\%$ passed four bobcats, and $13 \pm 3\%$ 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. Few bobcat hunters ($10 \pm 2\%$) that hunted with dogs hired a guide service to assist with their hunting (59 ± 12 hunters).

About $33 \pm 2\%$ of bobcat hunters reported the bobcat population was stable in the county they preferred to hunt bobcats, which was similar to the 2010 estimate (Figures 3-5). About $12 \pm 1\%$ reported bobcat numbers were increasing and $15 \pm 1\%$ reported fewer bobcats. Nearly $33 \pm 2\%$ of bobcat hunters were uncertain of the status of bobcats.

The mean value of bobcat pelts was usually positively correlated with the number of hunters, their days spent afield, and days of effort per registered bobcat during 1997-2010 (Table 15). In contrast, the mean value of bobcat pelts was negatively correlated with the number of bobcats registered in the UP and uncorrelated with registrations totals in the NLP.

Trapping

An estimated $23 \pm 1\%$ (1,043 trappers) of the tag-holders trapped bobcats during the 2011 season (Table 16), and these trappers had trapped bobcats an average of 8.8 years (± 0.6 year). Most trappers trapped bobcats on private land owned by themselves or their family ($54 \pm 3\%$). About $47 \pm 3\%$ of trappers trapped on private lands not owned by themselves or their family and about $33 \pm 2\%$ trapped on public land. About $66 \pm 2\%$ trapped on private land only, $14 \pm 2\%$ of the trappers trapped on public land only, and $19 \pm 2\%$ trapped on both public and private lands.

Trappers spent about 16,948 days afield trapping bobcats ($\bar{x} = 16.2 \pm 0.9$ days/trapper), caught 595 bobcats, registered 401 bobcats ($\bar{x} = 0.38 \pm 0.03$ bobcats/trapper), and released 194 bobcats from their traps during the 2011 season (Table 16, Figure 9).

The number of trappers increased significantly by 18% statewide between 2010 and 2011; however, 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 catching and registering a bobcat also did not change significantly between 2010 and 2011 (Table 18). The estimated number of days of effort per bobcat registered by trappers statewide was 42.2 days in 2011 and did not change significantly from 2010 (Table 19,

Figure 7). Within the Lower Peninsula, the number of days of effort per bobcat registered by trappers increased significantly in Unit C but decreased significantly in Unit D.

Trappers registered about 56% of the bobcats registered by furtakers (Figure 6). About 34% of bobcat trappers captured at least one bobcat and 30% registered at least one bobcat (Table 18). Nearly $22 \pm 2\%$ of the trappers registered only one bobcat and $8 \pm 1\%$ registered two bobcats. Nearly $10 \pm 2\%$ of the bobcat trappers caught bobcats that they released. They released 194 bobcats from their traps, which was a significant increase by 57% from the number released in 2010. About $9 \pm 1\%$ of the bobcat trappers caught a bobcat in a trap set for another furbearer (Figure 9).

Counties with 60 or more trappers pursuing bobcats included Menominee, Delta, Chippewa, Ontonagon, Marquette, and Dickinson (Table 20). Counties with more than 30 registered bobcats originating from that county included Ontonagon, Delta, and Menominee.

Most trappers used foothold traps (79%), while 39% of the trappers used body gripping traps (i.e., conibears) (Table 21). Most trappers preferred to use foothold traps (49%), while 28% preferred to use conibears (Table 22). An estimated 19% of trappers did not have a preferred trap type.

About $38 \pm 2\%$ of bobcat trappers reported the bobcat population was stable in the county they preferred to trap bobcats (Figures 3-5). About $21 \pm 2\%$ reported bobcat numbers were increasing and $12 \pm 2\%$ reported fewer bobcats. Nearly $26 \pm 2\%$ of bobcat trappers were uncertain of the status of bobcats.

The mean value of bobcat pelts was usually positively correlated with the number of trappers, their days spent afield, and days of effort per registered bobcat during 1997-2010 (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.

Beginning in 2009, hunting seasons in the UP were shortened by 31 days, and trapping seasons in the UP were shortened by 65 days (Tables 1 and 2). Despite the shorter seasons in the UP, the number of bobcat harvested in the UP has not changed markedly.

Between 1997 and 2007, the days of effort required by furtakers to harvest a bobcat in both the UP and LP increased significantly (Figure 7). During the last three years, however, the effort per registered bobcat has declined in the UP where seasons were shortened but has been relatively unchanged in the LP where season length was unchanged. The measure of effort per bobcat registered is an indirect measure of the abundance of bobcats. Changes in the effort per registered bobcats are inferred to signify changes in bobcat numbers. Decreasing effort per catch in the UP implies increasing bobcat numbers in the UP during the last few years. In contrast, an unchanging effort per catch in the LP indicates stable bobcat numbers in the LP.

About 24% of bobcat hunters and trappers combined registered at least one bobcat in Michigan during the 2011 seasons, while 24-26% ($\bar{x} = 25\%$) of bobcat hunters and trappers harvested at least one bobcat in Michigan during the last three years (Frawley 2012). Success rates in Michigan during the last three years have been lower than success rates of hunters and trappers in Wisconsin (60-73% [$\bar{x} = 68\%$] during 2008-2010, Dhuey and Olson 2009, 2010; Dhuey et al. 2011) and in Pennsylvania (34-40% [$\bar{x} = 38\%$] during 2007-2009, Lovallo 2011). Differences between states may reflect differences in bobcat numbers, hunting practices, and harvest regulations.

Approximately equal numbers of furtakers (hunters and trappers combined) pursued bobcats in the UP and the LP; however, furtakers expended about 80% greater effort in the UP than in the LP (Table 3). The proportion of furtakers registering a bobcat also was higher in the UP than the LP (31% versus 18%). 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 90% more people attempted to hunt bobcats in the LP than in the UP in 2011 (Table 6), although the season is shorter in the LP (Tables 1 and 2). Hunters in the LP spent nearly 50% more 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; however, the proportion of hunters registering at least one bobcat was greater in the UP than in the LP (24% versus 14%).

Although there were nearly 1.7 times as many bobcat hunters than trappers in Michigan during the 2011 seasons, trappers registered about 1.3 times as many bobcats as hunters. Bobcat hunters devoted an average of 50 days of effort per bobcat registered, while trappers spent about 42 days of effort per bobcat registered. These estimates of effort per catch for hunters and trappers were not significantly different.

Although a higher proportion of hunters that used dogs were more successful than hunters using calls, the difference was not significant in 2011 (19% of hunters using dogs registered a bobcat versus 14% of hunters using calls, Table 10). In contrast, hunters using dogs have normally had significantly higher success than hunters using calls (Frawley 2012). 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.

Michigan experienced unseasonably warm temperatures and below normal snowfall during December-February (Midwestern Regional Climate Center 2012). Average temperatures were at least 4°F above normal across Michigan during this period. Hunters using dogs prefer to have snow cover while hunting because it helps them locate and track bobcats. Thus, the lack of snow cover probably reduced hunting opportunities and harvest by hunters using dogs.

About 10% of the bobcat trappers in Michigan released a bobcat from their traps set during the 2011 season, which was similar to the 2010 estimate (Frawley 2012). In comparison, 6-12% (\bar{x} = 9%) of Wisconsin bobcat trappers released a bobcat from their traps during 2006-2010 in Wisconsin (Kitchell and Olson 2007; Dhuey and Olson 2008, 2009, 2010; Dhuey et al. 2011).

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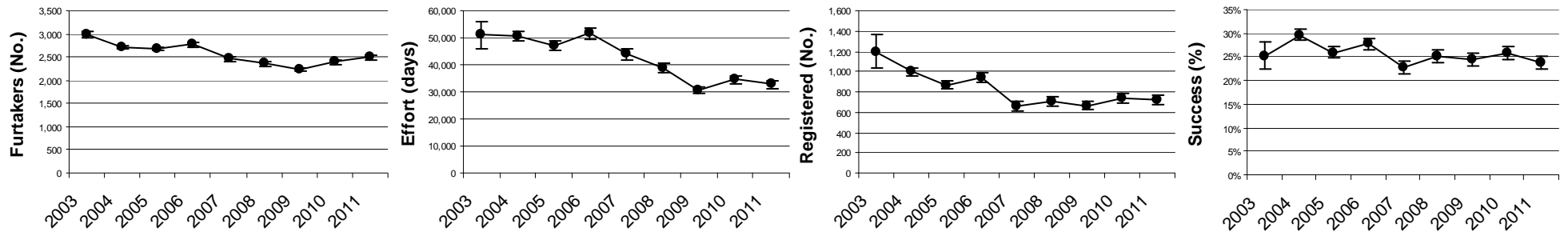
We thank all the hunters and trappers that provided information. Sheree Kershaw and Theresa Riebow completed data entry. Marshall Strong prepared the figure of bobcat management units. Sarah Cummins, Dwayne Etter, Russ Mason, and Doug Reeves reviewed a draft version of this report.

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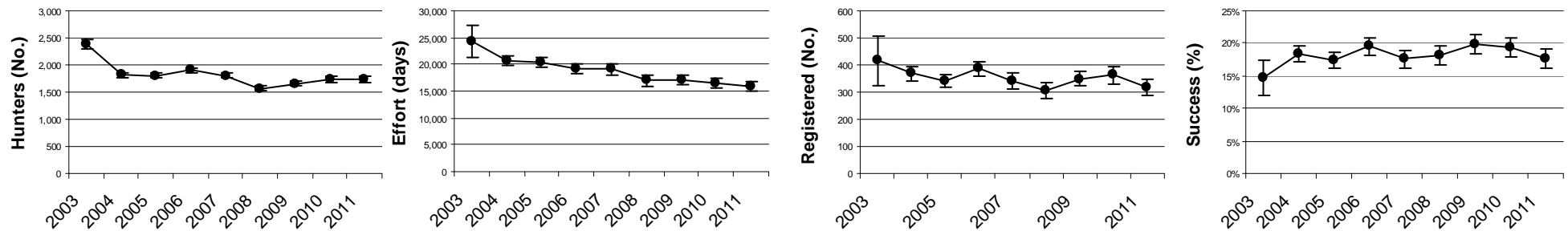
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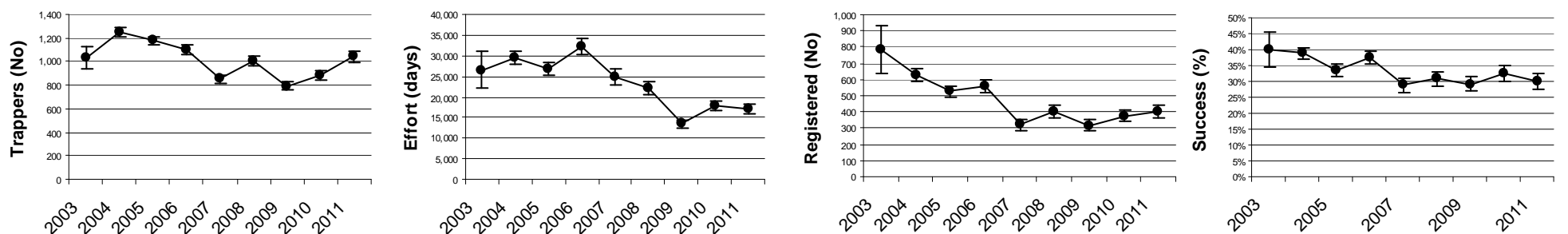
Hunting and trapping combined



Hunting



Trapping



Year

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 2003-2011, 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.

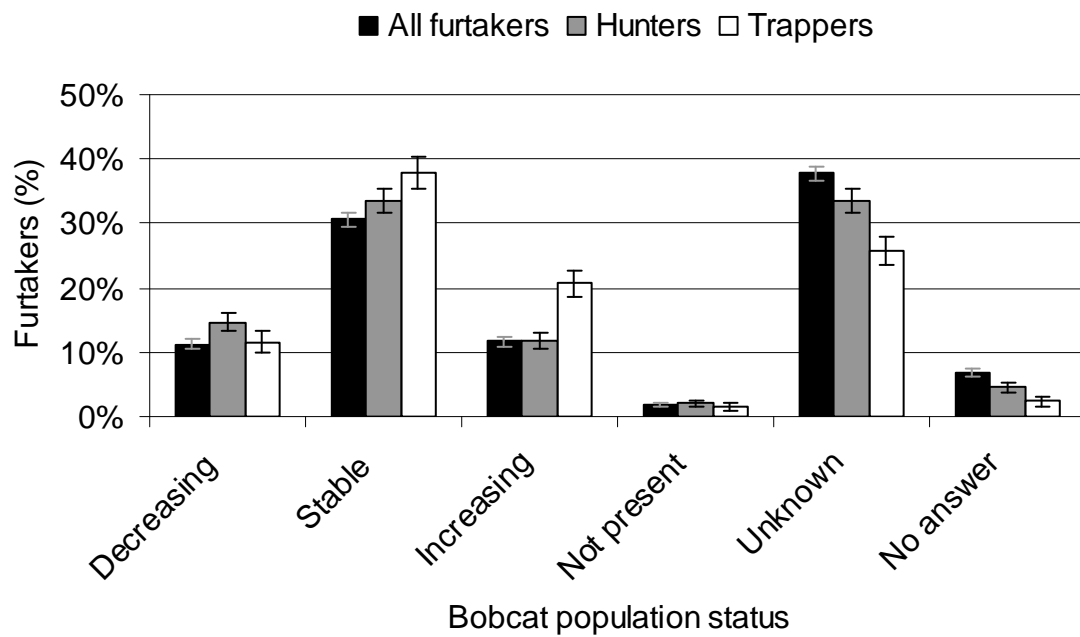


Figure 3. Status of bobcats in Michigan during 2011 as described by bobcat hunters and trappers. Vertical bars represent the 95% CL.

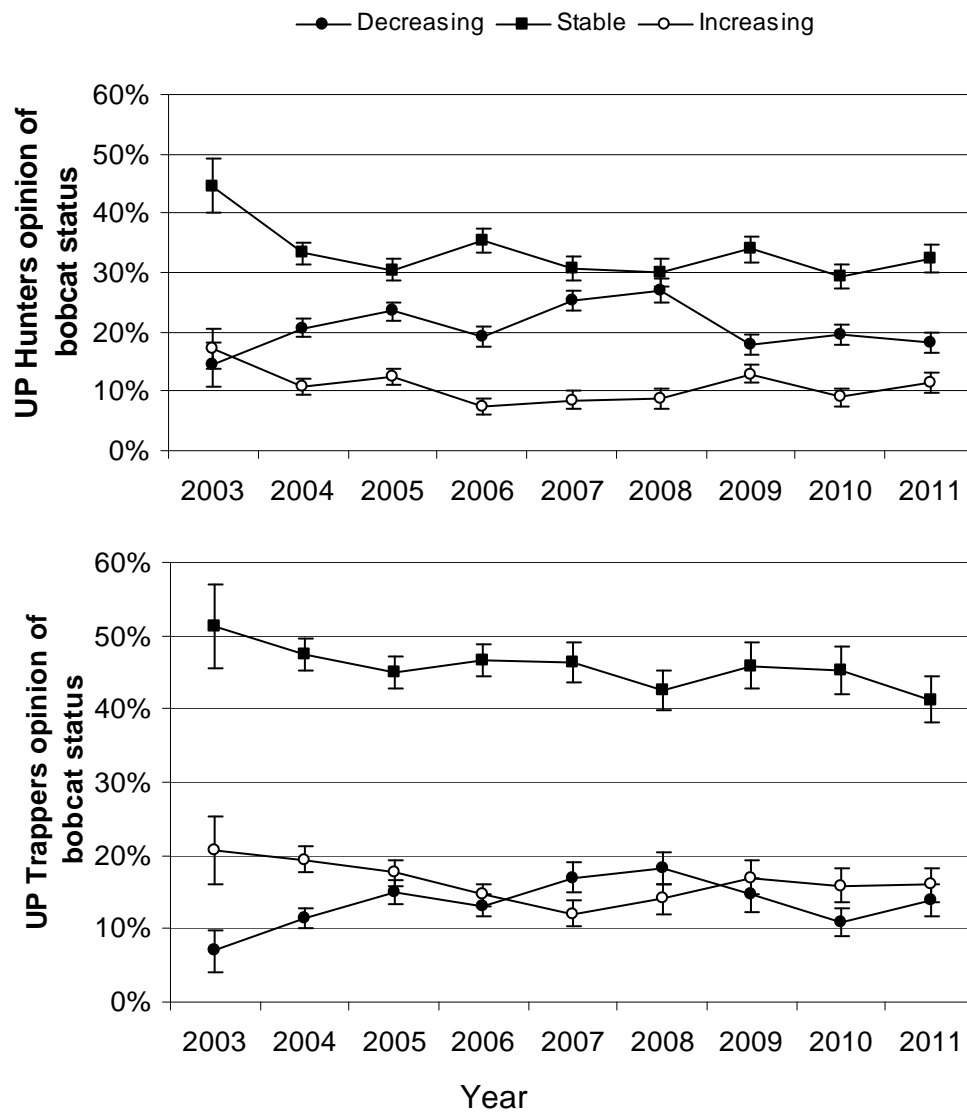


Figure 4. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Upper Peninsula, 2003-2011. Vertical bars represent the 95% CL.

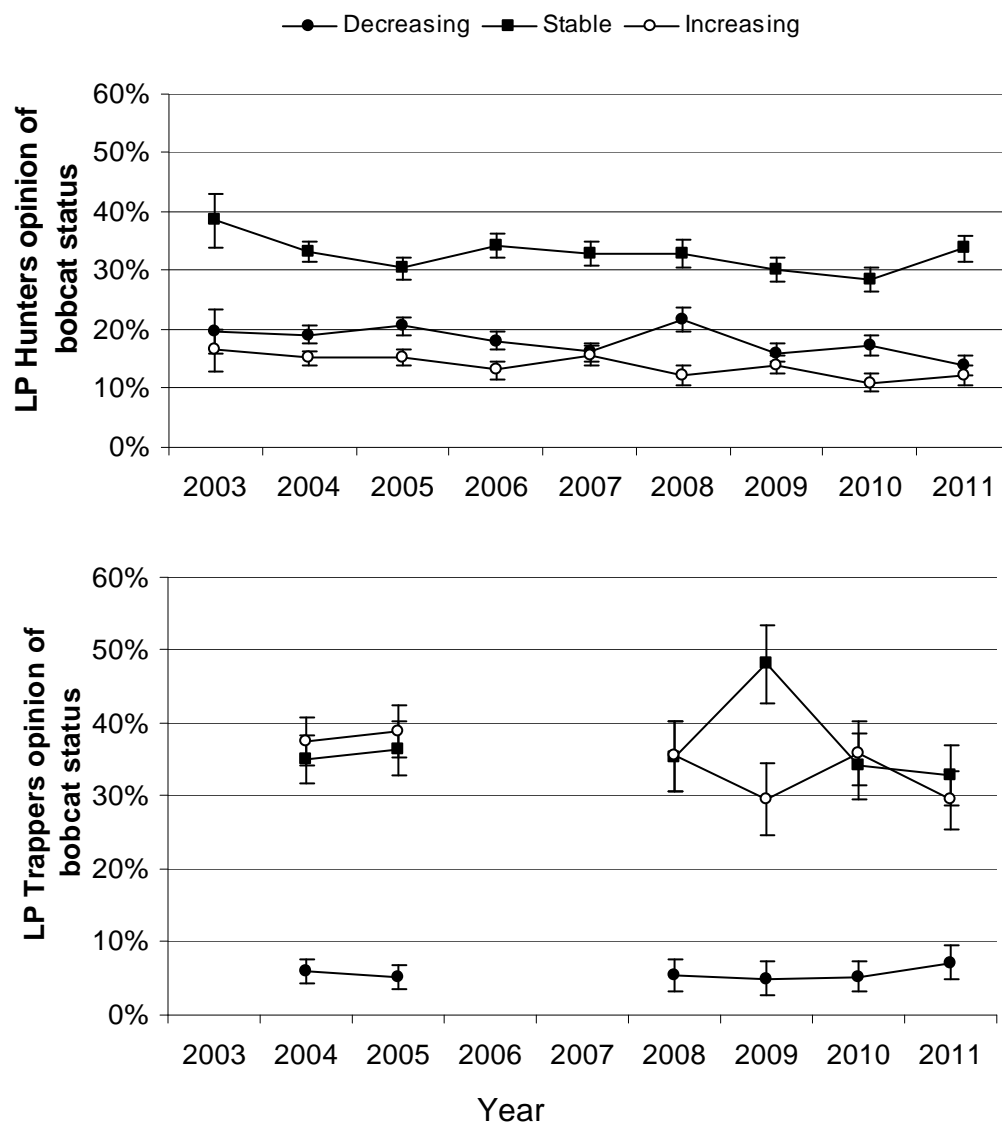


Figure 5. Status of bobcat population in Michigan as described by bobcat hunters and trappers in the Lower Peninsula, 2003-2011. Vertical bars represent the 95% CL.

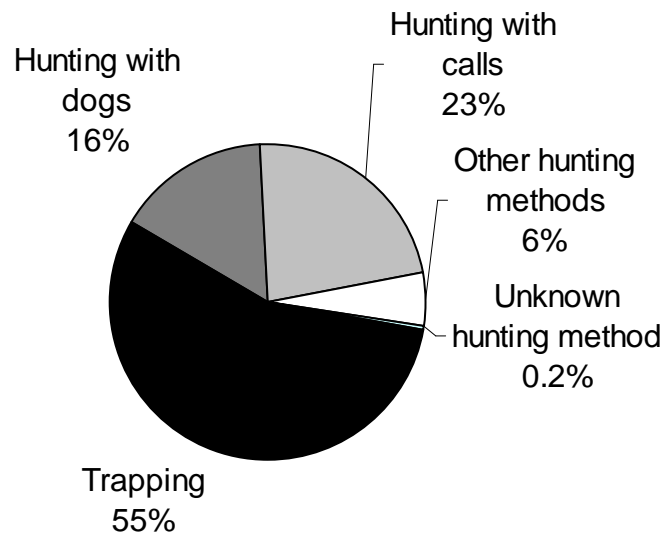


Figure 6. Proportion of bobcats registered in Michigan during 2011, summarized by method of take.

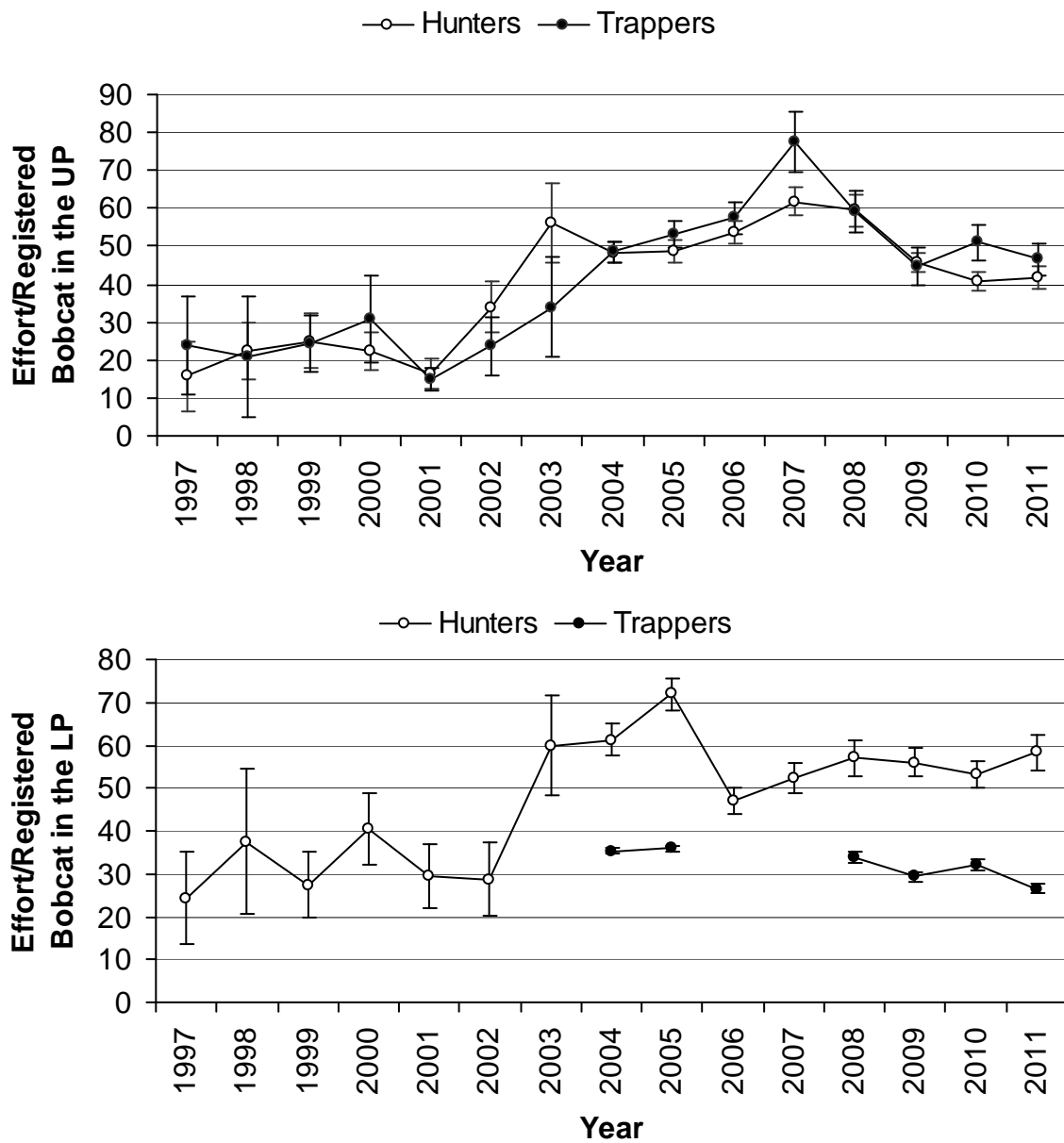


Figure 7. Estimated number of days of effort per bobcat registered in Michigan by hunters and trappers for the 1997-2011 seasons, summarized by region. Vertical error bars represent the 95% CL. Bobcat could be harvested by trappers in portions of the LP during 2004-2005 and 2008-2011 only.

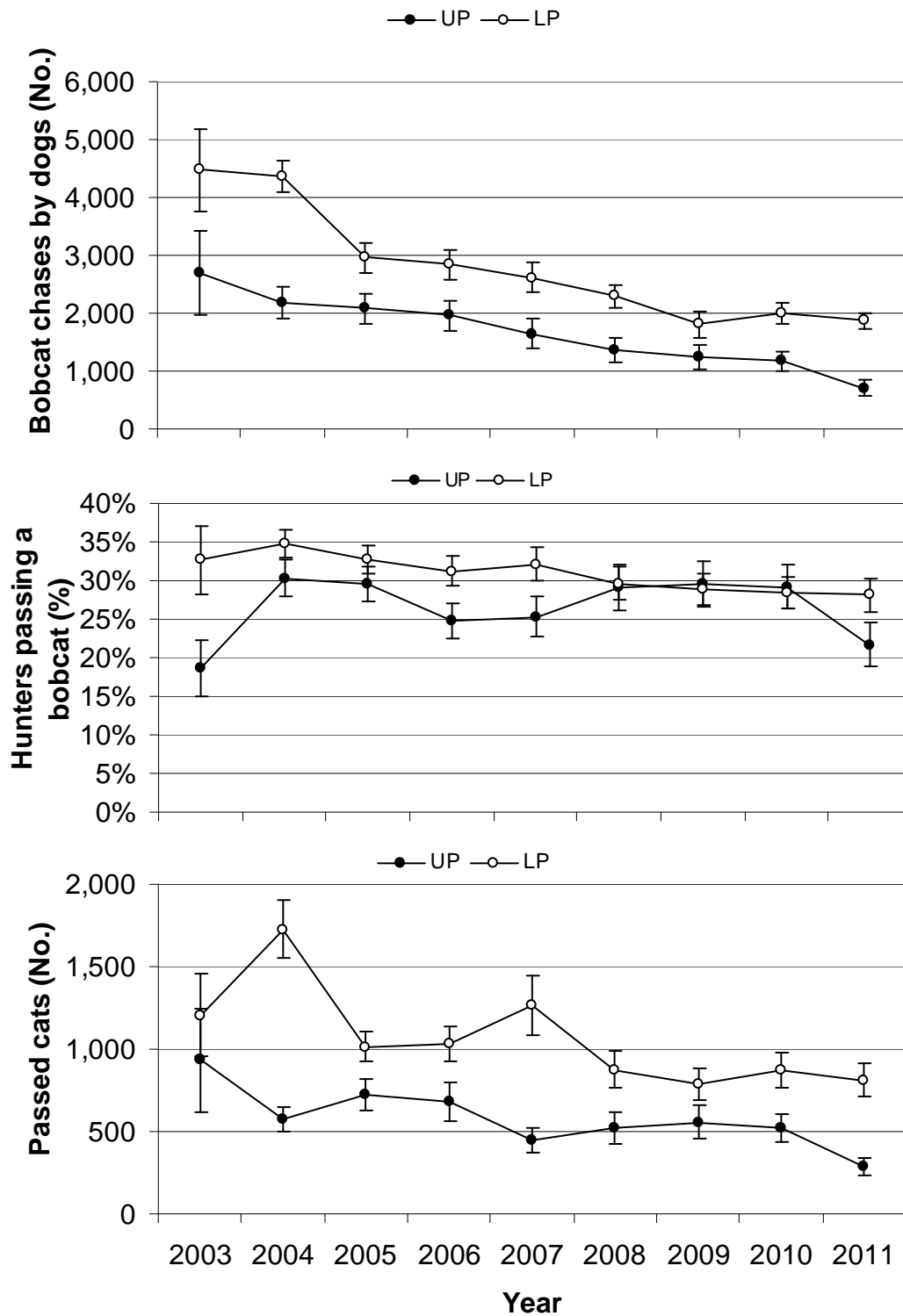


Figure 8. Number of bobcat chases by dogs, proportion of hunters passing a bobcat (bobcats within range or treed but not harvested), and number of bobcats passed by hunters (all types of hunting) in Michigan, 2003-2011. Vertical bars represent the 95% CL.

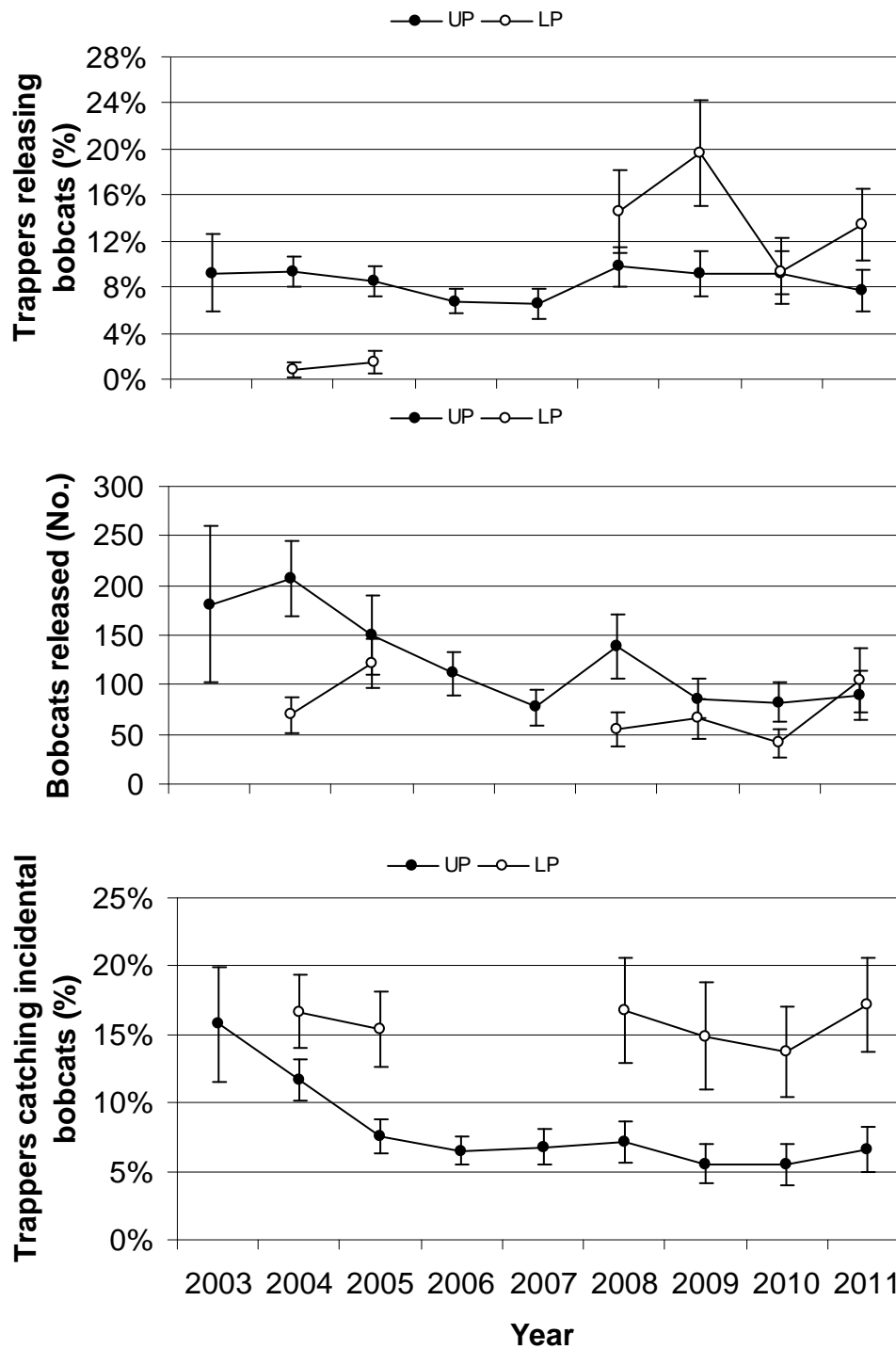


Figure 9. Number of trappers releasing bobcats from their traps, number of bobcats released from traps, and proportion of trappers that caught a bobcat in a trap set for another species (incidental catch) in Michigan, 2003-2011. Trapping of bobcat in the LP was permitted in 2004-2005 and 2008-2011 only. Vertical bars represent the 95% CL.

Table 1. Resident bobcat hunting season dates and seasonal bag limits in Michigan, 1985-2011.

Year	State-wide bag limit ^a	Hunting season zone						
		Upper Peninsula ^b		Drummond Island		Lower Peninsula		
		Season dates	Bag limit ^a	Season dates	Bag limit ^a	North ^c	South ^d	Bag limit ^a
1985	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1986	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1987	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1988	None	10/25-3/1	None	Closed	0	1/1-3/1	NA	None
1989	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	1
1990	1	10/25-3/1	1	Closed	0	1/1-3/1	1/1-2/1	1
1991	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1992	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1993	1	10/25-3/1	1	Closed	0	1/1-3/1	1/15-2/16	1
1994	2	10/25-3/1	2	Closed	0	1/1-3/1	1/15-2/16	1
1995	2	10/25-3/1	2	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1996	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1997	3	10/25-3/1	3	10/25-3/1	1	1/1-3/1	1/15-2/16	1
1998	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
1999	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2000	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2001	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2002	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2003	3	12/1-3/1	3	12/1-3/1	1	1/1-3/1	1/15-2/16	1
2004	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2005	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2006	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2007	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2008	2	12/1-3/1	2	12/1-3/1	1	1/1-3/1	1/1-2/1	1
2009	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1
2010	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	1
2011	2	1/1-3/1	2	1/1-3/1	1	1/1-3/1	1/1-2/1	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 Bois Blanc Island during 1985-1988 and Drummond Island in the Upper Peninsula.

^cDuring 1985-1988, the North Zone included Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Clare, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties. Roscommon county was added during 1985-1986, and Arenac, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, and Roscommon counties were added in 1988. During 1989-2011, the North Zone included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2011.

^dThe South Zone did not exist before 1989. During 1989-2011, the South Zone 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. The South Zone also included Alcona and Oscoda counties during 1989-1990.

Table 2. Resident bobcat trapping season dates and seasonal bag limits in Michigan, 1985-2011.

Year	State-wide bag limit ^a	Trapping season zone						
		Upper Peninsula ^b		Drummond Island		Lower Peninsula		
		Season dates	Bag limit ^a	Season dates	Bag limit ^a	North ^c	South ^d	Bag limit ^a
1985	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1986	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1987	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1988	None	10/25-3/1	None	Closed	0	Closed	Closed	0
1989	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1990	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1991	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1992	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1993	1	10/25-3/1	1	Closed	0	Closed	Closed	0
1994	2	10/25-3/1	2	Closed	0	Closed	Closed	0
1995	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
1996	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1997	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1998	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
1999	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2000	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2001	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2002	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2003	3	10/25-3/1	3	10/25-3/1	1	Closed	Closed	0
2004	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2005	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2006	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
2007	2	10/25-3/1	2	10/25-3/1	1	Closed	Closed	0
2008	2	10/25-3/1	2	10/25-3/1	1	12/10-20	12/10-20	1
2009	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	1
2010	2	12/1-2/1	2	12/1-2/1	1	12/10-20	12/10-20	1
2011	2	12/1-2/1	2	12/1-2/1	1	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 Bois Blanc Island during 1985-1988 and Drummond Island in the Upper Peninsula.

^cDuring 1985-1988, the North Zone included Alcona, Alpena, Antrim, Charlevoix, Cheboygan, Clare, Emmet, Montmorency, Oscoda, Otsego, and Presque Isle counties. Roscommon county was added during 1985-1986, and Arenac, Crawford, Gladwin, Iosco, Kalkaska, Missaukee, Ogemaw, Osceola, and Roscommon counties were added in 1988. During 1989-2011, the North Zone included Alpena, Antrim, Charlevoix, Cheboygan, Emmet, Montmorency, Otsego, and Presque Isle. Alcona and Oscoda counties were added during 1991-2011.

^dThe South Zone did not exist before 1989. During 1989-2011, the South Zone 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. The South Zone also included Alcona and Oscoda counties during 1989-1990.

Table 3. Estimated number of furtakers (hunters and trappers combined) pursuing bobcat and their hunting and trapping effort (days combined) in Michigan for 2010 and 2011, summarized by area.

Area	Furtakers ^a					Hunting and trapping effort				
	Year				Change (%)	Year				Change (%)
	2010		2011			2010		2011		
	No.	95 CL	No.	95 CL		Days	95 CL	Days	95 CL	
Upper Peninsula	1,073	44	1,099	47	2	22,090	1,486	20,646	1,379	-7
Lower Peninsula	1,347	48	1,345	50	0	12,126	751	11,553	754	-5
Unit C	710	38	721	40	2	6,616	583	6,617	657	0
Unit D	718	38	701	40	-2	5,510	447	4,935	389	-10
Unspecified	74	13	123	18	66*	197	55	593	194	201*
Statewide	2,393	50	2,501	54	5*	34,413	1,585	32,792	1,496	-5

^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 2010 and 2011, summarized by area.

Registering at least one bobcat in Michigan during 2010 and 2011, summarized by area.										
Area	Bobcats registered ^a					Furtakers registering a bobcat				
	Year				Change (%)	Year				Difference (%)
	2010		2011			2010		2011		
	No.	95 CL	No.	95 CL		%	95 CL	%	95 CL	
Upper Peninsula	465	39	458	41	-1	34	2	31	2	-2
Lower Peninsula	256	25	248	25	-3	19	2	18	2	0
Unit C	140	18	123	18	-12	20	2	17	2	-3
Unit D	117	17	125	18	7	16	2	18	2	2
Unspecified	16	8	15	8	-8	16	7	10	4	-6
Statewide	737	46	721	47	-2	26	1	24	1	-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 2011 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	121	18	855	183	27	8	22	6
Alger	46	11	556	179	12	6	22	10
Alpena	110	17	1,006	205	13	6	12	5
Antrim	40	10	261	88	5	4	13	8
Arenac	10	5	40	26	0	0	0	0
Baraga	47	11	769	246	12	6	25	10
Charlevoix	42	10	312	94	2	2	4	5
Cheboygan	108	17	959	240	10	5	9	5
Chippewa	113	17	1,819	408	37	12	25	7
Clare	93	15	705	157	20	7	22	7
Crawford	64	13	396	107	5	4	8	5
Delta	142	19	2,308	416	61	15	33	6
Dickinson	115	17	2,269	489	39	12	28	7
Emmet	37	10	317	125	5	4	14	9
Gladwin	79	14	474	109	12	6	15	6
Gogebic	78	14	1,104	270	44	13	46	9
Houghton	57	12	996	319	10	7	12	7
Iosco	64	13	578	155	13	6	21	8
Iron	94	16	1,562	378	30	11	23	7
Kalkaska	47	11	373	116	5	4	11	7
Keweenaw	10	5	217	163	5	5	33	24
Luce	42	10	437	137	8	5	20	10
Mackinac	94	16	1,268	300	32	11	25	7
Marquette	111	17	1,927	379	27	10	18	6
Menominee	150	20	2,985	524	52	14	26	6
Missaukee	66	13	297	79	12	6	18	8
Montmorency	137	19	998	207	20	7	15	5
Ogemaw	81	14	484	114	7	4	8	5
Ontonagon	103	16	1,431	321	74	18	48	8
Osceola	81	14	575	134	20	7	25	8
Oscoda	118	17	693	159	15	6	13	5
Otsego	62	13	437	144	12	6	19	8
Presque Isle	94	16	780	184	13	6	14	6
Roscommon	103	16	470	99	13	6	13	5
Schoolcraft	66	13	1,000	314	15	8	15	7
Wexford	94	16	544	114	17	7	18	6
Unspecified	123	18	593	194	15	8	10	4

^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 2010 and 2011, summarized by area.

Area	Hunters ^a					Hunting effort				
	Year				Change	Year				Change
	2010		2011			2010		2011		
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	604	36	585	37	-3	6,549	605	6,198	589	-5
Lower Peninsula	1,165	46	1,128	47	-3	9,852	696	9,136	703	-7
Unit C	641	37	629	38	-2	5,757	558	5,433	615	-6
Unit D	603	36	570	36	-5	4,095	370	3,703	341	-10
Unspecified	46	11	78	14	69*	191	54	511	174	168*
Statewide	1,734	50	1,739	53	0	16,591	899	15,844	900	-4

^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 2010 and 2011, summarized by area.

Area	Bobcats passed ^a					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2010		2011		Change (%)	2010		2011		Change (%)	2010		2011		Difference (%)
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		%	95% CL	%	95% CL	
Upper Peninsula	521	88	285	53	-45*	161	22	148	21	-8	24	3	24	3	0
Lower Peninsula	871	104	809	101	-7	186	21	157	20	-16	16	2	14	2	-2
Unit C	550	83	442	75	-20	112	16	91	15	-19	17	2	14	2	-3
Unit D	320	54	367	65	15	74	14	66	13	-11	12	2	12	2	0
Unspecified	7	6	115	51	1645*	16	8	15	8	-8	25	10	15	7	-10
Statewide	1,398	136	1,209	128	-14	363	31	320	29	-12	19	1	18	1	-2

^aAn estimated 12 ± 8 bobcats were passed by hunters in areas not open for hunting during 2011; 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 2011, 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	101	16	649	165	37	16	17	7	17	6
Alger	25	8	189	76	3	3	2	2	7	8
Alpena	93	15	851	183	54	19	12	6	13	6
Antrim	35	10	204	77	15	11	3	3	10	8
Arenac	8	5	35	25	8	8	0	0	0	0
Baraga	24	8	202	111	10	7	2	2	7	9
Charlevoix	37	10	226	79	19	10	0	0	0	0
Cheboygan	94	16	777	210	27	13	7	4	7	4
Chippewa	56	12	423	143	34	20	15	7	24	9
Clare	81	14	549	132	61	31	13	6	17	7
Crawford	62	13	367	99	32	15	3	3	5	5
Delta	83	15	720	170	46	17	24	8	27	8
Dickinson	67	13	652	177	35	17	15	6	23	8
Emmet	34	9	308	125	29	26	5	4	15	10
Gladwin	56	12	253	78	17	12	8	5	15	8
Gogebic	35	10	217	75	20	9	17	7	48	14
Houghton	25	8	271	134	10	7	0	0	0	0
Iosco	49	11	386	127	25	14	8	5	17	9
Iron	49	11	418	125	30	24	5	5	7	6

^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 8. (Continued) Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2011, 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
Kalkaska	37	10	270	105	25	14	0	0	0	0
Keweenaw	3	3	69	75	2	2	0	0	0	0
Luce	30	9	234	85	7	6	7	4	22	12
Mackinac	61	13	460	138	12	8	10	5	17	8
Marquette	66	13	646	159	24	14	13	7	18	8
Menominee	94	16	1,107	245	30	13	19	7	20	7
Missaukee	57	12	239	71	39	14	10	5	18	8
Montmorency	128	18	865	191	89	31	19	7	14	5
Ogemaw	72	14	386	97	47	18	5	4	7	5
Ontonagon	47	11	401	131	15	8	15	7	29	11
Osceola	54	12	389	117	40	18	7	4	13	7
Oscoda	111	17	607	139	81	33	12	6	11	5
Otsego	52	12	367	139	17	10	8	5	16	8
Presque Isle	76	14	578	165	74	34	8	5	11	6
Roscommon	91	15	425	93	47	30	8	5	9	5
Schoolcraft	39	10	187	61	7	5	5	4	13	9
Wexford	74	14	403	98	25	16	2	2	2	3
Unspecified	78	14	511	174	115	51	15	8	15	7

^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 9. Estimated number of days of effort per bobcat registered by hunters in Michigan during 2009-2011, summarized by year and area.

Area	Year						Change between 2010 and 2011 (%)
	2009		2010		2011		
	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	
Upper Peninsula	45.7	2.6	40.7	2.5	41.8	3.0	3
Lower Peninsula	56.0	3.3	53.1	3.2	58.3	4.1	10
Unit C	55.6	2.6	51.5	2.4	59.7	3.4	16
Unit D	56.8	2.1	55.4	2.0	56.3	2.4	2
Unspecified	21.5	0.6	11.6	0.2	33.7	0.8	
Statewide	49.5	4.2	45.7	4.0	49.5	5.5	8

^{*}P<0.005. Comparison between 2010 and 2011.

Table 10. Estimated number of hunters, hunting effort (days), bobcats passed, bobcats registered, and proportion of hunters that registered a bobcat in Michigan during 2011, 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	167	21	376	30	86	15	10	5
LP	399	31	700	39	72	14	17	7
Unit C	222	24	386	30	51	11	10	5
Unit D	204	23	352	29	24	8	7	4
Unspecified	42	10	34	9	5	4	2	2
Statewide	575	36	1,094	47	163	20	29	9
Hunting effort (Days)								
UP	1,680	363	3,521	384	876	229	120	86
LP	3,562	548	4,888	419	603	152	83	49
Unit C	2,154	495	2,865	339	342	103	71	48
Unit D	1,407	229	2,023	227	261	112	12	9
Unspecified	295	131	207	112	8	11	0	0
Statewide	5,537	672	8,617	563	1,488	274	202	99
Bobcats passed by hunters (No.)								
UP	115	33	130	31	29	15	12	13
LP	423	77	339	57	40	16	7	7
Unit C	244	59	167	42	24	11	7	7
Unit D	179	45	172	39	17	12	0	0
Unspecified	79	46	30	19	5	6	0	0
Statewide ^b	617	102	499	68	74	23	19	14
Bobcats registered by hunters (No.)								
UP	57	12	74	15	17	7	0	0
LP	44	11	89	15	22	8	2	2
Unit C	29	9	44	11	17	7	2	2
Unit D	15	6	46	11	5	4	0	0
Unspecified	13	7	0	0	2	2	0	0
Statewide	115	18	163	22	40	10	2	2
Hunters that registered at least one bobcat (%)								
UP	34	6	17	3	20	7	0	0
LP	11	3	13	2	30	9	10	12
Unit C	13	4	11	3	33	11	17	19
Unit D	7	3	13	3	21	14	0	0
Unspecified	24	11	0	0	33	34	0	0
Statewide	19	3	14	2	25	5	6	7

^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 2010 and 2011, summarized by area.

Summarized by area.										
Area	Hunters using dogs ^a					Hunting effort				
	Year				Change (%)	Year				Change (%)
	2010		2011			2010		2011		
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	230	23	167	21	-27*	2,464	419	1,680	363	-32*
Lower Peninsula	453	32	399	31	-12	4,395	538	3,562	548	-19
Unit C	266	25	222	24	-16	2,860	429	2,154	495	-25
Unit D	225	23	204	23	-9	1,536	250	1,407	229	-8
Unspecified	23	8	42	10	83*	130	47	295	131	127
Statewide	652	37	575	36	-12*	6,989	686	5,537	672	-21*

^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 2010 and 2011, summarized by area.

Area	Bobcats passed ^a					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2010		2011		Change	2010		2011		Change	2010		2011		Differ- ence (%)
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		%	95% CL	%	95% CL	
Upper Peninsula	325	78	115	33	-65*	84	16	57	12	-32	31	5	34	6	3
Lower Peninsula	542	89	423	77	-22	94	15	44	11	-53*	21	3	11	3	-10*
Unit C	379	73	244	59	-36*	62	12	29	9	-54*	23	4	13	4	-11*
Unit D	163	39	179	45	10	31	9	15	6	-51*	14	4	7	3	-6
Unspecified	7	6	79	46	1106*	15	8	13	7	-9	43	16	24	11	-19
Statewide	874	119	617	102	-29*	192	23	115	18	-40*	27	3	19	3	-7*

^aAn estimated 3 ± 4 bobcats were passed by hunters in areas not open for hunting during 2011; 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 2010 and 2011, summarized by area.

Area	Hunters using calls ^a					Hunting effort				
	Year				Change (%)	Year				Change (%)
	2010		2011			2010		2011		
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	332	27	376	30	13	3,137	370	3,521	384	12
Lower Peninsula	691	38	700	39	1	4,893	420	4,888	419	0
Unit C	376	29	386	30	3	2,638	330	2,865	339	9
Unit D	351	28	352	29	0	2,255	247	2,023	227	-10
Unspecified	20	7	34	9	71	48	23	207	112	335*
Statewide	1,020	44	1,094	47	7	8,078	549	8,617	563	7

^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 2010 and 2011, summarized by area.

Area	Bobcats passed ^a					Bobcats registered					Hunters that registered a bobcat				
	Year					Year					Year				
	2010		2011		Change	2010		2011		Change	2010		2011		Differ- ence (%)
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		%	95% CL	%	95% CL	
Upper Peninsula	151	31	130	31	-14	53	12	74	15	41	14	3	17	3	3
Lower Peninsula	274	43	339	57	24	80	14	89	15	11	11	2	13	2	1
Unit C	146	30	167	42	14	44	10	44	11	-1	12	3	11	3	0
Unit D	128	30	172	39	34	36	10	46	11	26	10	2	13	3	3
Unspecified	0	0	30	19	NA	0	0	0	0		0	0	0	0	0
Statewide	425	54	499	68	17	133	19	163	22	23	12	2	14	2	2

^aAn estimated 7 ± 6 bobcats were passed by hunters in areas not open for hunting during 2011; these passed bobcats were not included in statewide estimate.

*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 1997-2010, summarized by region.^a

Estimate and region	Correlation ^b	Significance (P-value) ^c
Number of hunters		
UP	0.67	0.01
NLP	0.53	0.04
Days of effort		
UP	0.66	0.01
NLP	0.61	0.02
Bobcats registered ^d		
UP	-0.58	0.02
NLP	0.06	0.84
Effort per bobcats registered		
UP	0.68	0.01
NLP	0.62	0.01

^aMean pelt prices were the average paid in Minnesota and Wisconsin (Abraham and Dexter 2010, Dhuey 2010). Pelt prices were reported in 2011 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2011).

^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 2010 and 2011, summarized by area.

Area	Trappers ^a					Trapping effort				
	Year				Change (%) ^b	Year				Change (%) ^b
	2010		2011			2010		2011		
	No.	95% CL	No.	95% CL		Days	95% CL	Days	95% CL	
Upper Peninsula	588	35	662	39	13*	15,541	1,288	14,448	1,195	-7
Lower Peninsula	279	25	349	29	25*	2,275	278	2,417	238	6
Unit C	118	17	165	20	40*	859	144	1,185	177	38*
Unit D	163	20	185	22	14	1,416	239	1,232	165	-13
Unspecified	30	9	47	11	60	7	8	83	85	1157
Statewide	887	42	1,043	46	18*	17,822	1,307	16,948	1,209	-5

^aNumber 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 2010 and 2011, summarized by area.

Area	Bobcats captured					Bobcats released alive					Bobcats registered				
	Year					Year					Year				
	2010		2011		Change (%) ^a	2010		2011		Change (%) ^a	2010		2011		Change (%) ^a
	No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL		No.	95% CL	No.	95% CL	
Upper Peninsula	386	43	399	48	3	82	20	89	24	9	304	33	310	35	2
Lower Peninsula	112	23	196	39	75*	41	14	105	33	155*	71	13	91	15	29
Unit C	49	15	72	22	47	21	9	40	18	89	28	8	32	9	15
Unit D	62	17	123	33	97*	20	11	64	27	225*	43	11	59	12	38
Unspecified	0	0	0	0		0	0	0	0		0	0	0	0	
Statewide ^a	498	48	595	62	20	123	24	194	40	57*	374	36	401	38	7

^aAn estimated 8 ± 11 bobcats were captured and released alive by trappers in areas not open to bobcat hunting (Unit E) in 2011. This estimate was not included in 2011 statewide estimates of bobcats captured and released by trappers.

*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 2010 and 2011, summarized by area.

Area	Trappers that captured a bobcat					Trappers that registered a bobcat				
	Year				Difference (%)	Year				Difference (%) ^a
	2010 ^a		2011			2010 ^a		2011		
	%	95% CL	%	95% CL		%	95% CL	%	95% CL	
Upper Peninsula	41	3	36	3	-5	38	3	34	3	-4
Lower Peninsula	28	4	35	4	7	25	4	26	4	1
Unit C	31	7	28	6	-3	24	6	19	5	-4
Unit D	26	5	42	6	16*	25	5	32	6	7
Unspecified	0	0	0	0	0	0	0	0	0	0
Statewide	36	3	34	2	-2	33	2	30	2	-3

*P<0.005.

Table 19. Estimated number of days of effort per bobcat registered in Michigan by trappers for the 2008-2011, summarized by year and area.^a

Area		Year						Change between 2010 and 2011 (%) ^a
		2009 ^a		2010 ^a		2011		
		Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	Effort per registered bobcat	95% CL	
Upper Peninsula		44.7	5.1	51.1	4.8	46.6	4.3	-9
Lower Peninsula		29.3	1.1	32.2	1.2	26.6	1.0	-18*
Unit C		48.6	1.0	30.8	0.7	37.0	0.9	20*
Unit D		21.6	0.7	33.2	1.0	20.9	0.6	-37*
Unspecified		47.2	0.8	0.0	0.0	0.0	0.2	
Statewide		42.4	5.2	47.6	4.9	42.2	4.3	-11

*P<0.005. Comparison between 2010 and 2011.

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 2011, 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	
	95%		95%		95%		95%		95%		95%		95%	
	No.	CL	No.	CL	No.	CL	No.	CL	No.	CL	%	CL	%	CL
Alcona	30	9	206	68	15	9	5	5	10	5	33	14	33	14
Alger	29	9	367	142	13	8	3	3	10	6	29	14	29	14
Alpena	27	8	155	57	25	16	24	15	2	2	31	14	6	8
Antrim	7	4	57	37	2	2	0	0	2	2	25	27	25	27
Arenac	2	2	5	6	0	0	0	0	0	0	0	0	0	0
Baraga	29	9	566	218	12	6	2	2	10	5	35	14	35	14
Charlevoix	8	5	86	48	2	2	0	0	2	2	20	22	20	22
Cheboygan	29	9	182	66	7	5	3	4	3	3	18	12	12	10
Chippewa	69	13	1,396	368	37	15	15	10	22	9	32	9	27	9
Clare	22	8	155	61	10	6	3	3	7	4	38	17	31	16
Crawford	5	4	29	26	3	3	2	2	2	2	67	34	33	34
Delta	72	14	1,588	355	39	13	2	2	37	12	37	9	37	9
Dickinson	62	13	1,616	441	29	11	5	5	24	10	30	9	27	9
Emmet	3	3	8	11	0	0	0	0	0	0	0	0	0	0
Gladwin	32	9	221	69	3	3	0	0	3	3	11	9	11	9
Gogebic	51	11	887	256	42	14	15	8	27	10	50	11	40	11
Houghton	35	10	725	253	10	7	0	0	10	7	19	11	19	11
Iosco	20	7	192	71	19	11	13	9	5	4	50	18	25	16
Iron	56	12	1,144	344	30	12	5	5	25	10	36	10	33	10

^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 2011, 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
Kalkaska	15	6	103	48	8	5	3	3	5	4	56	21	33	20
Keweenaw	8	5	148	101	10	11	5	6	5	5	40	27	40	27
Luce	19	7	202	95	2	2	0	0	2	2	9	11	9	11
Mackinac	47	11	807	257	39	19	17	12	22	9	39	12	36	11
Marquette	66	13	1,281	312	15	8	2	2	13	7	18	8	15	7
Menominee	79	14	1,878	431	40	15	7	5	34	12	32	9	30	8
Missaukee	10	5	57	32	5	4	3	3	2	2	50	26	17	19
Montmorency	20	7	133	53	3	4	2	2	2	2	8	10	8	10
Ogemaw	13	6	98	46	3	3	2	2	2	2	25	19	13	15
Ontonagon	69	13	1,030	282	66	19	7	5	59	16	54	10	54	10
Osceola	29	9	185	63	30	22	17	19	13	6	47	15	47	15
Oscoda	15	6	86	43	5	4	2	2	3	3	33	20	22	17
Otsego	12	6	69	38	5	4	2	2	3	3	43	23	29	21
Presque Isle	29	9	202	69	8	5	3	3	5	4	29	14	18	12
Roscommon	15	6	46	33	24	18	19	16	5	4	44	21	33	20
Schoolcraft	34	9	812	299	15	11	5	5	10	7	20	11	20	11
Wexford	27	8	142	50	17	7	2	2	15	6	56	16	56	16
Unspecified	47	11	83	85	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 2011.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	79	2	821	42
Conibears	39	2	411	31
Other ^a	3	1	35	10

^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 2011.

Trap type	Trappers (%)	95% CL	Trappers (No.)	95% CL
Foothold traps	49	3	509	34
Conibears	28	2	295	27
No preference	19	2	196	22
Other ^a	1	0	8	5
No answer	3	1	35	10

^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 1997-2010, summarized by region.^a

Estimate and region	Correlation ^b	Significance (P-value) ^c
Number of trappers		
UP	0.80	0.00
NLP ^d	0.72	0.10
Days of effort		
UP	0.89	0.00
NLP ^d	0.85	0.03
Bobcats registered ^e		
UP	0.23	0.42
NLP ^d	0.19	0.50
Effort per bobcats registered		
UP	0.54	0.04
NLP ^d	0.69	0.13

^aMean pelt prices were the average paid in Minnesota and Wisconsin (Abraham and Dexter 2010, Dhuey 2010). Pelt prices were reported in 2011 dollars by adjusting for inflation using the Consumer Price Index (Bureau of Labor Statistics 2011).

^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 NLP during 2004-2005 and 2008-2010 only.

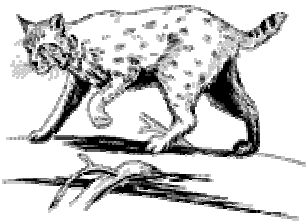
^eThe tally of bobcats registered by furtakers at DNR registration stations, rather than estimate from survey.

Appendix A. The questionnaire sent to people that obtained a bobcat harvest tag in Michigan for the 2011 bobcat hunting and trapping seasons.



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 2011-12 hunting and trapping seasons (December 1, 2011, through March 1, 2012).
- 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 2011-12 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 2011-12 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 2011-12 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 2011-12 season?

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

6. Who owned the dogs that you used to hunt bobcats during the 2011-12 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.

