



2008 MARTEN AND FISHER HARVEST SURVEY

Brian J. Frawley

ABSTRACT

A survey was completed to determine the number of harvest tag holders who set traps for marten and fisher, the number of animals caught, the types of traps used, and the number of days spent trapping. In 2008, 1,598 furtakers obtained a harvest tag to trap marten or fisher. About 30% of the tag holders set traps for marten (491 trappers) and 34% set traps for fisher (552). The estimated 491 marten trappers spent about 4,169 days trapping marten (\bar{x} = 8.5 days/trapper), captured 450 marten (including animals released alive), and registered 284 marten (including incidentally caught animals). About 60% of marten trappers captured at least one marten. An estimated 552 fisher trappers spent nearly 5,766 days trapping fisher (\bar{x} = 10.4 days/trapper), captured 367 fisher (including animals released alive), and registered 318 fisher (including incidentally caught animals). About 40% of fisher trappers captured at least one fisher. The number of furtakers trapping marten and fisher and their days of effort were nearly unchanged between 2007 and 2008. Furthermore, the number of marten and fisher captured and number registered were similar between 2007 and 2008.

INTRODUCTION

The Natural Resources Commission and 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 important management tools used to help accomplish this statutory responsibility. The main objectives of this harvest survey were to determine the number of trappers who set traps for marten (*Martes americana*) and fisher (*M. pennanti*), the types of traps used, the number of days trapped, and the number of animals captured.



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Efforts to restore the American marten and fisher have been successful throughout the Upper Peninsula (UP) (Williams et al. 2007). As a result, the first modern fisher trapping season was initiated in 1989, and the first modern marten trapping season was initiated in 2000.

In 2008, the marten and fisher trapping season was 15 days in the UP (December 1-15). The entire UP, except Drummond Island and the Pictured Rocks National Lakeshore, was open to marten and fisher trapping. In order to trap either marten or fisher, trappers were required to obtain a free harvest tag, in addition to a Fur Harvester License. Trappers were limited to one marten and three fisher, except no more than one fisher could be taken in Management Unit B (Figure 1). Successful trappers were required to register all fisher and marten taken by December 18, 2009. Trappers were not allowed to keep incidental marten and fisher that were caught. However, trappers were required to bring these incidental catches to a registration station if they could not be released alive. Trappers could use body-gripping (e.g., conibear) traps and foothold traps to capture marten and fisher. Live traps were also legal if set within 150 yards of a residence or farm building.

METHODS

The DNR provided all marten and fisher trappers the option to report information voluntarily about their trapping activity via the internet. This option was advertised on the DNR website and an email message was sent to all trappers that obtained either a marten or fisher harvest tag and had provided an email address to the DNR (214 trappers). Trappers reported whether they trapped marten or fisher, number of days spent afield, number of marten and fisher caught and released alive, and number of marten and fisher registered (registration estimates included incidentally caught animals that were not returned to the trapper). Trappers were also asked to indicate their impression of the status of the marten and fisher populations in the county where they primarily trapped (i.e., absent, stable, increasing, or decreasing). Following the 2008 marten and fisher trapping season, a questionnaire was sent to all harvest tag holders that had not already voluntarily reported harvest information via the internet. Trappers receiving the questionnaire in the mail were asked the same questions as trappers responding on the internet.

Although all harvest tag holders that had not already reported their trapping activity via the internet were sent a questionnaire, not everybody returned their questionnaire. To extrapolate from the tag holders that returned their questionnaire to all people obtaining harvest tags, estimates were calculated using a stratified random sampling design that included four strata (Cochran 1977). Trappers were stratified based on the type of harvest tags obtained (i.e., marten tags [41 trappers], fisher tags [70], or both tag types [1,487]) and whether they had voluntarily reported their trapping activity on the internet (39). The statewide estimate of the mean number of days required to harvest a marten and fisher was calculated using a different ratio of effort to harvest for each stratum (i.e., separate ratio estimator). The number of animals registered for each stratum was used as an auxiliary variate to improve the precision of ratio estimates.

A 95% confidence limit (CL) was calculated for each estimate. In theory, the 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 that the true value would be within this interval 95 times out of 100. Unfortunately, there are several other

possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that 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 that the difference between the means was larger than would be expected 995 out of 1,000 times, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during mid-January 2009, and up to two follow-up questionnaires were mailed to nonrespondents. Questionnaires were undeliverable to 24 harvest tag holders. Questionnaires were returned by 1,071 of 1,570 people receiving the questionnaire (68% response rate). In addition, 39 people voluntarily reported information about their trapping activity via the internet before the random sample was selected.

RESULTS AND DISCUSSION

Marten

In 2008, 1,598 trappers obtained harvest tags to trap either marten or fisher. Marten harvest tags were obtained by 1,528 trappers, and fisher harvest tags were obtained by 1,557 trappers. Men obtained most of the marten and fisher harvest tags (1,516). Women obtained 78 harvest tags, and the sex of four tag holders was unknown. About 30% of the marten and fisher tag holders set traps for marten (491 trappers, Table 1). Trappers spent 4,169 days trapping ($\bar{x} = 8.5 \pm 0.4$ days/trapper), captured 450 marten, and registered 284 marten (Table 2). About $64 \pm 3\%$ of trappers successfully captured at least one marten. The greatest numbers of marten were captured in Marquette (105), Alger (85), and Baraga (60) counties.

Between 2007 and 2008, the number of people trapping marten (491 versus 499 trappers) and their trapping effort were nearly unchanged (4,169 versus 4,407 days, Figure 2). The number of marten captured and the number registered also did not change significantly between 2007 and 2008. The mean number of days of effort per registered marten was 14.5 ± 1.1 days in 2008, which also was similar to the estimate from 2007 (13.9 days, Figure 3).

The mean number of days of effort per registered marten was correlated with the mean value of marten pelts during 2000-2007 (Pearson product moment correlation coefficient $[r] = 0.72$, probability of obtaining this result $[P] = 0.04$) (Figure 4). The correlations between the number of trappers and pelt prices ($r = 0.88$, $P < 0.01$) and between trapping effort and pelt prices ($r = 0.90$, $P < 0.01$) were also significant.

Most trappers used body-gripping type traps (e.g., conibears) to capture marten ($86 \pm 2\%$), although foothold traps also were used frequently ($34 \pm 3\%$). Among trappers using body-gripping traps, the mean number of body-gripping traps set per day was 5.1 ± 0.3 . Among trappers using foothold traps, the mean number of foothold traps set per day was 5.1 ± 0.6 .

Thirty-nine percent of marten trappers ($\pm 3\%$) believed marten numbers were increasing in the county where they trapped most often, while $43 \pm 3\%$ thought marten numbers were stable, $6 \pm 1\%$ thought marten were declining, $9 \pm 2\%$ indicated marten were not present, and $3 \pm 1\%$ did not comment on the status of marten.

Fisher

About 34% of the marten and fisher tag holders set traps for fisher (552 trappers, Table 1). Trappers spent 5,766 days trapping (10.4 ± 0.3 days/trapper), captured 367 fisher, and registered 318 fisher (Table 3). About $40 \pm 3\%$ of trappers successfully captured at least one fisher. The greatest numbers of fisher were captured in Iron (58) and Gogebic (58) counties (Table 3).

Compared to 2007, the number of people trapping fisher and their trapping effort was nearly unchanged in 2008 (Figure 5). In addition, the number of fisher captured and the number of fisher registered did not change significantly between 2007 and 2008. The mean number of days of effort per registered fisher was 18.2 ± 1.6 days in 2008, which was similar to the estimate from 2007 (19.6 days, Figure 6).

The mean number of days of effort per registered fisher was correlated with the mean value of fisher pelts during 1997-2007 ($r = 0.62$, $P = 0.04$; Figure 7). The correlations between the number of trappers and pelt prices ($r = 0.75$, $P < 0.01$) and between trapping effort and pelt prices ($r = 0.72$, $P = 0.04$) were also significant.

Most trappers used body-gripping traps (e.g., conibears) to capture fisher ($83 \pm 2\%$), although foothold traps also were used frequently ($38 \pm 3\%$). Among trappers using body-gripping traps, the mean number of body-gripping traps set per day was 6.0 ± 0.4 traps. Among trappers using foothold traps, the mean number of foothold traps set daily was 5.6 ± 0.4 traps.

Sixteen percent of fisher trappers ($\pm 2\%$) believed fisher numbers were increasing in the county where they trapped most often, while $53 \pm 3\%$ thought fisher numbers were stable, $18 \pm 2\%$ thought they were declining, $8 \pm 2\%$ indicated fisher were absent, and $4 \pm 1\%$ did not comment on the status of fisher.

Among trappers that set traps for fisher, $9 \pm 2\%$ caught marten in their fisher sets. These trappers caught 119 ± 40 marten.

ACKNOWLEDGEMENTS

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LITERATURE CITED

- Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York. USA.
- Dexter, M.H., editor. 2008. Status of wildlife populations, fall 2008. Unpublished report, Division of Fish and Wildlife, Minnesota Department of Natural Resources, St. Paul, USA.
- Kitchell, J., editor. 2008. Wisconsin wildlife harvest summary, 1930-2007. Wisconsin Department of Natural Resources, Madison, USA.
- Payton, M. E., M. H. Greenstone, and N. Schenker. 2003. Overlapping confidence intervals or standard error intervals: what do they mean in terms of statistical significance? *Journal of Insect Science* 3:34.
- Williams, B. W., J. H. Gilbert, and P. A. Zollner. 2007. Historical perspective on the reintroduction of the fisher and American marten in Wisconsin and Michigan. United States Department of Agriculture, Forest Service, General Technical Report NRS-5, Newton Square, Pennsylvania, USA.

Table 1. Estimated harvest tag holders that attempted to trap marten or fisher in Michigan during 2008 season.

Species sought by tag holders	%	95% CL ^a	Total	95% CL ^a
Trapped only marten	7	1	106	14
Trapped only fisher	10	1	168	16
Trapped both marten and fisher	23	1	384	23
Trapped either marten or fisher	40	2	659	27
Trapped marten ^b	30	2	491	25
Trapped fisher ^c	34	2	552	26

^a95% confidence limits.

^bSum of trappers that trapped only marten and trappers that trapped both marten and fisher.

^cSum of trappers that trapped only fisher and trappers that trapped both marten and fisher.

Table 2. Estimated number of trappers, trapping effort, marten captured (including all incidental catches and releases), marten released alive, and marten registered (including incidental catches) during the 2008 Michigan trapping season.

County	Trappers		Trapping effort (days)		Marten captured ^a		Marten released alive		Marten registered ^b	
	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c
Alger	41	9	357	86	85	35	61	32	23	6
Baraga	64	11	450	88	60	12	7	4	52	10
Chippewa	66	11	550	103	42	9	4	3	38	8
Delta	13	5	83	35	6	4	2	2	4	2
Dickinson	7	4	49	31	1	2	0	0	1	2
Gogebic	46	9	444	98	21	6	1	2	19	6
Houghton	19	6	170	59	11	5	1	2	10	4
Iron	37	8	341	85	22	9	7	6	15	5
Keweenaw	15	5	124	49	12	5	0	0	12	5
Luce	42	9	297	73	34	12	12	9	22	6
Mackinac	13	5	118	49	3	2	0	0	3	2
Marquette	78	12	613	106	105	28	52	22	53	11
Menominee	7	4	61	37	0	0	0	0	0	0
Ontonagon	22	6	198	64	15	7	6	5	9	4
Schoolcraft	35	8	257	72	27	11	9	7	18	6
Unknown	10	4	55	28	6	4	1	2	4	3
Statewide ^d	491	25	4,169	276	450	52	166	43	284	21

^aAll marten removed from traps, including all incidental catches and releases.

^bIncludes incidentally caught marten that were not returned to the trapper.

^c95% confidence limits.

^dNumber of trappers does not add up to statewide total because trappers could trap in more than one county. Column totals for trapping effort and capture may not equal statewide totals because of rounding errors.

Table 3. Estimated number of trappers, trapping effort, fisher captured (including all incidental catches and releases), fisher released alive, and fisher registered (including incidental catches) by trappers during the 2008 Michigan trapping season.

County	Trappers		Trapping effort (days)		Fisher captured ^a		Fisher released alive		Fisher registered ^b	
	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c	Total	95% CL ^c
Alger	34	8	349	90	9	4	1	2	7	4
Baraga	62	10	623	113	46	13	1	2	45	13
Chippewa	42	8	404	93	6	3	0	0	6	3
Delta	13	5	76	37	3	2	0	0	3	2
Dickinson	19	6	194	61	12	6	0	0	12	6
Gogebic	60	10	643	117	58	17	7	7	50	13
Houghton	41	8	414	93	30	8	3	2	27	7
Iron	68	11	680	122	58	18	15	8	43	13
Keweenaw	18	6	176	61	9	5	0	0	9	5
Luce	39	8	297	72	7	4	0	0	7	4
Mackinac	21	6	116	43	7	4	0	0	7	4
Marquette	73	11	767	128	45	13	12	6	33	10
Menominee	32	8	310	80	18	6	1	2	16	6
Ontonagon	35	8	338	82	34	12	3	3	31	11
Schoolcraft	41	9	328	81	22	9	4	5	18	6
Unknown	4	3	52	36	1	2	0	0	1	2
Statewide ^d	552	26	5,766	330	367	37	49	14	318	31

^aAll fisher removed from traps, including all incidental catches and releases.

^bIncludes incidentally caught fisher that were not returned to the trapper.

^c95% confidence limits.

^dNumber of trappers does not add up to statewide total because trappers could trap in more than one county. Column totals for trapping effort and capture may not equal statewide totals because of rounding errors.

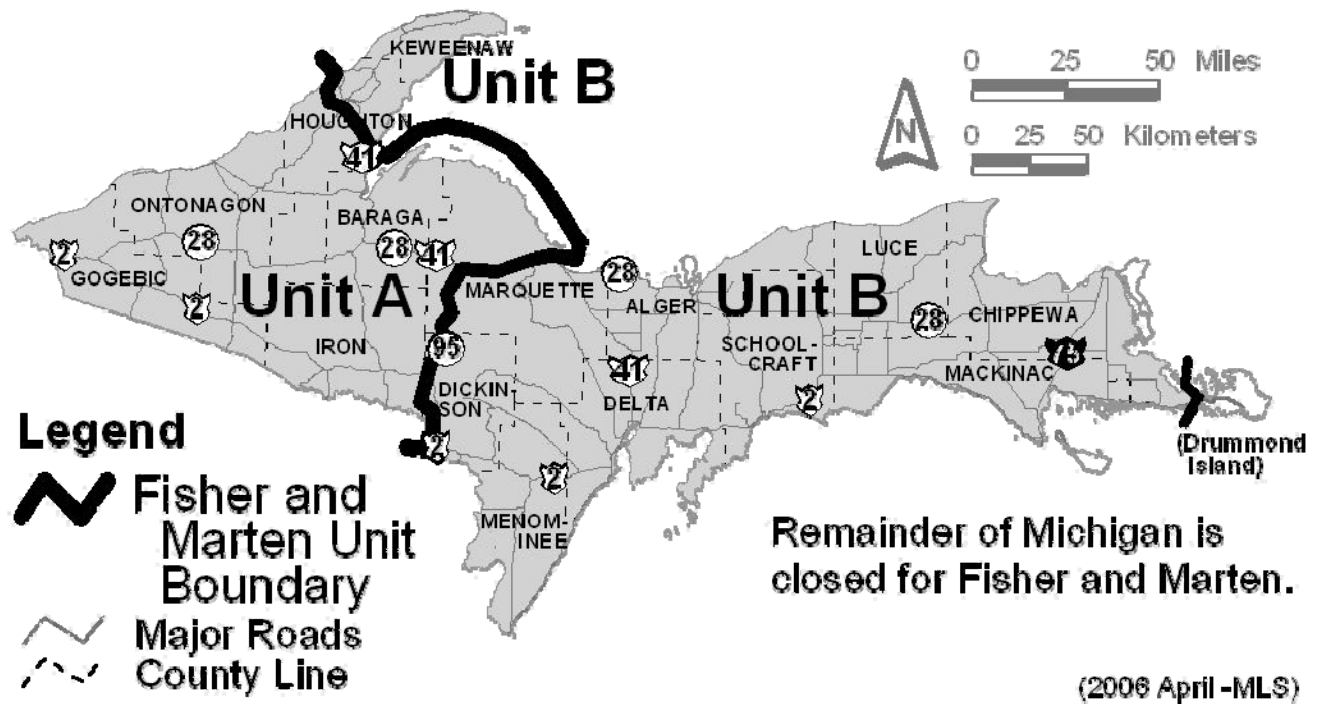


Figure 1. Marten and fisher management units in Michigan, 2008.

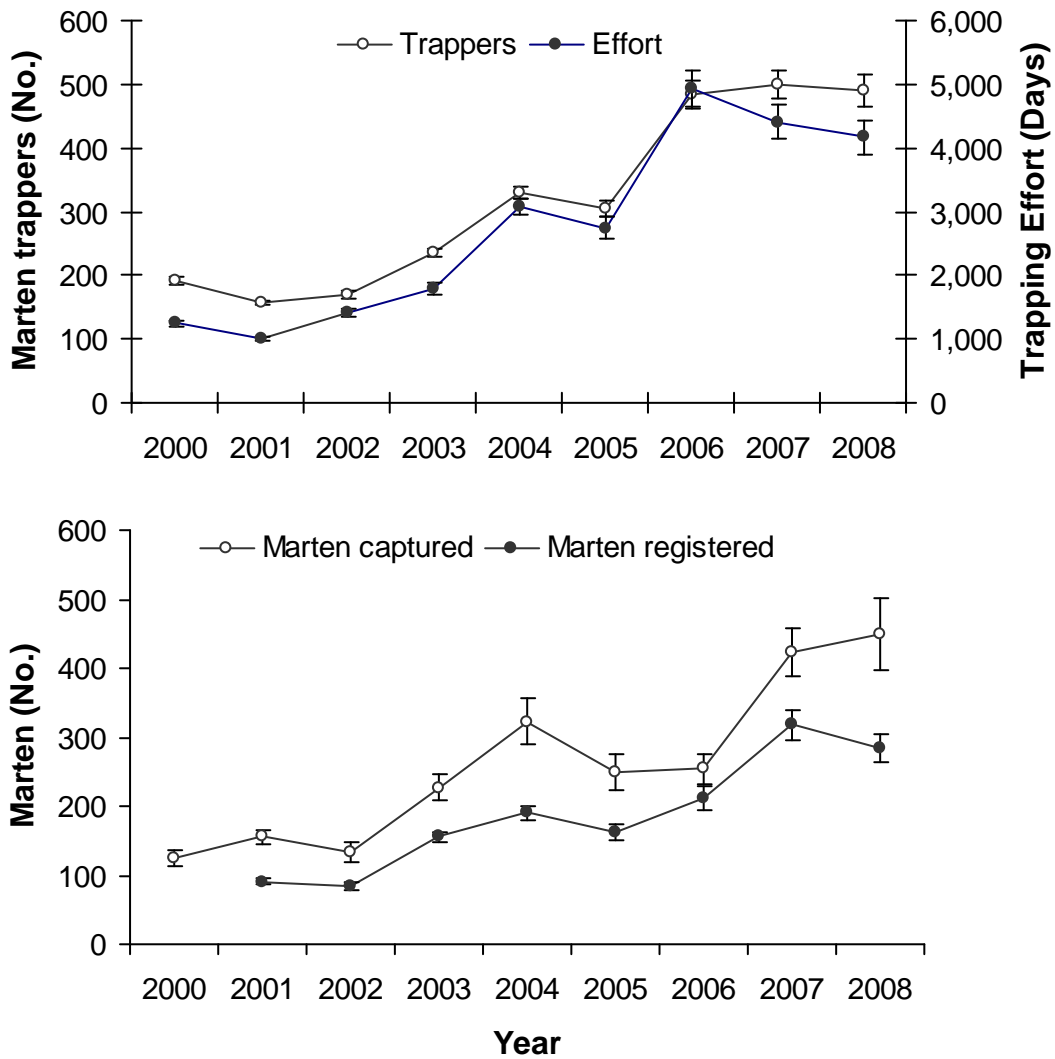


Figure 2. Estimated number of trappers, trapping effort (days), and number of marten captured and registered in Michigan, 2000-2008. Registration total was not estimated in 2000. Beginning in 2006, the estimate of marten registered included incidental animals that the trapper was not allowed to keep; estimates from previous years excluded incidental animals.

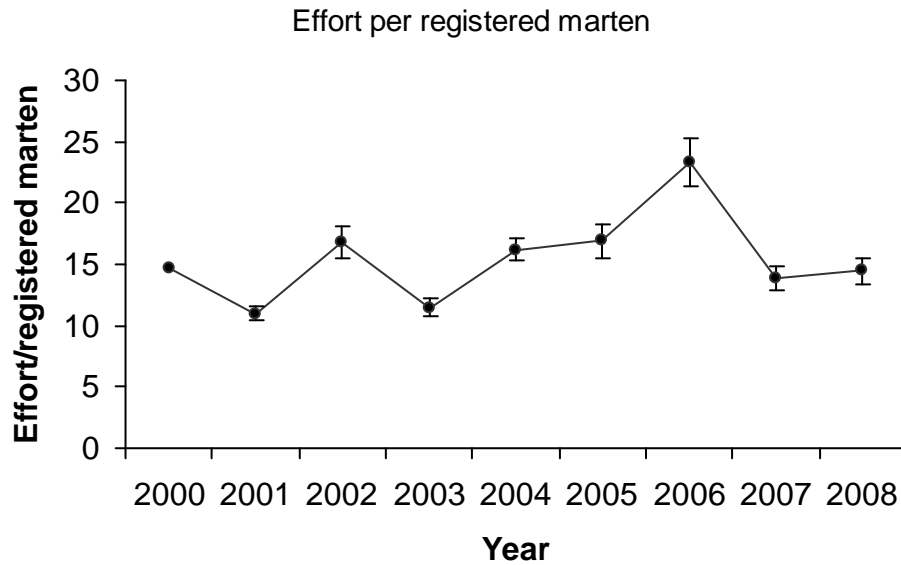


Figure 3. Estimated mean number of days required to harvest a marten in Michigan during 2000-2008. Vertical bars represent the 95% confidence interval.

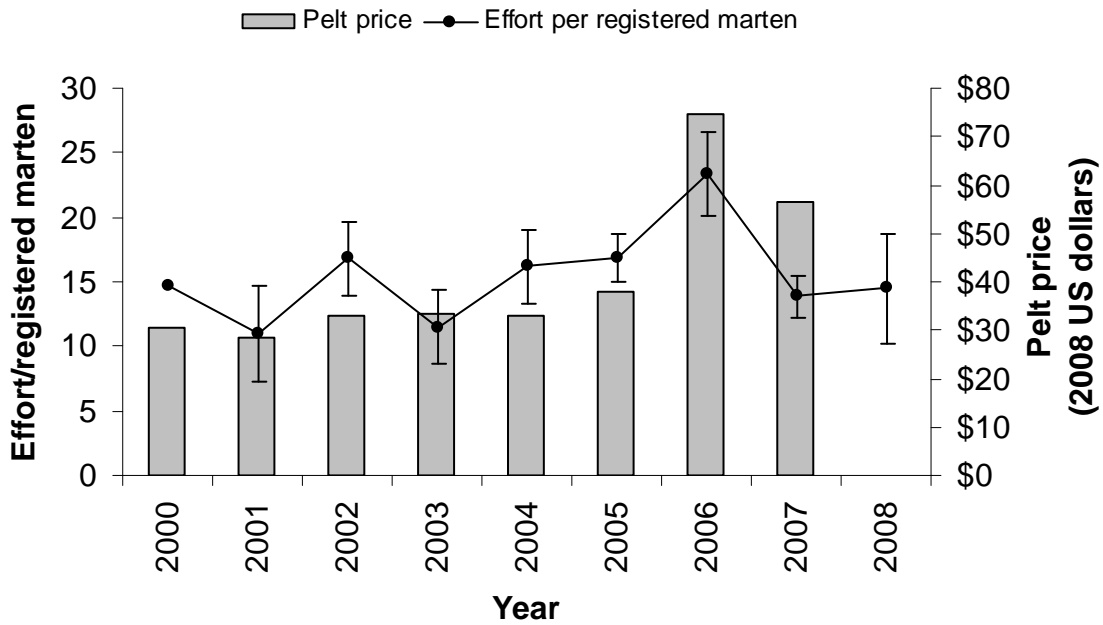


Figure 4. Estimated mean number of days required to harvest a marten in Michigan and the mean pelt value during 2000-2008. Vertical bars represent the 95% confidence interval. Pelt prices were the mean of values reported from Minnesota (Dexter 2008) and Wisconsin (Kitchell 2008). Pelt price were adjusted for inflation and reported in 2008 dollars. Pelt prices were not available for 2008.

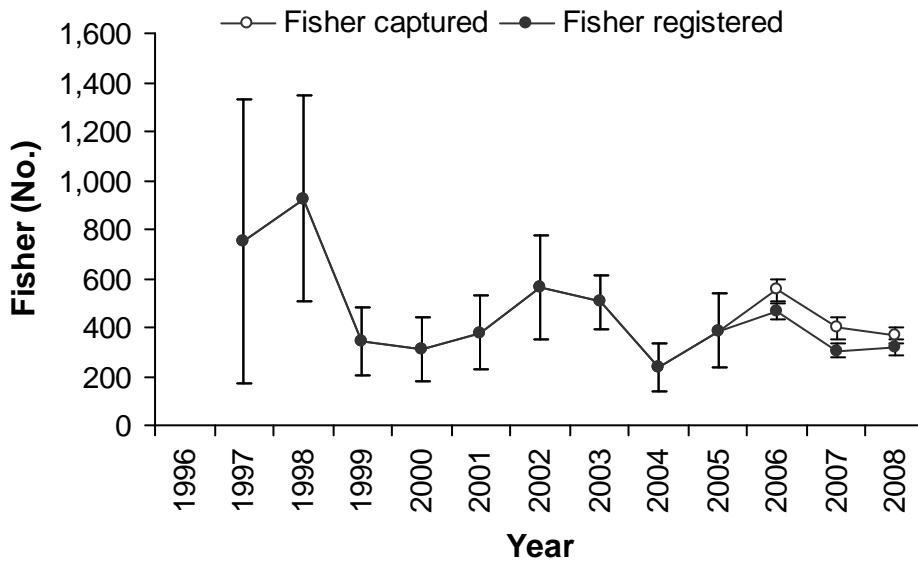
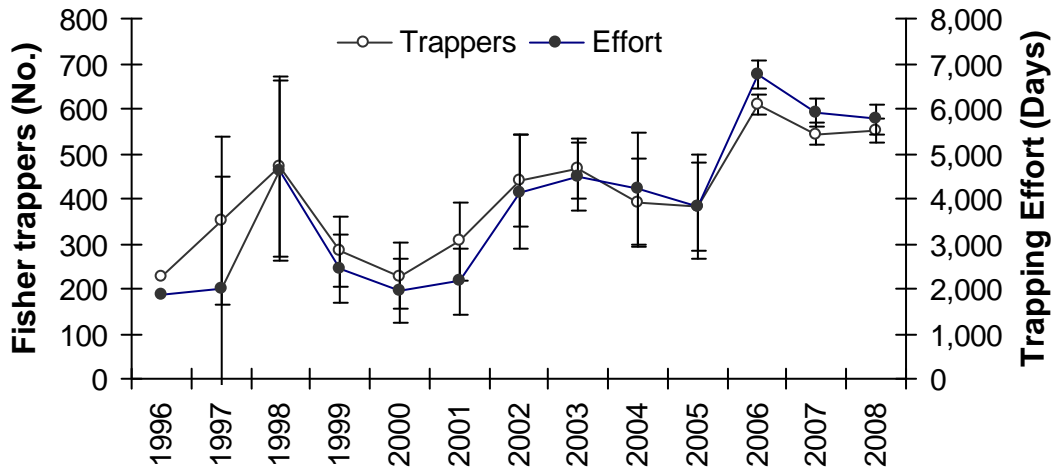


Figure 5. Estimated number of trappers, trapping effort (days), and number of fisher captured and registered in Michigan, 1996-2008.

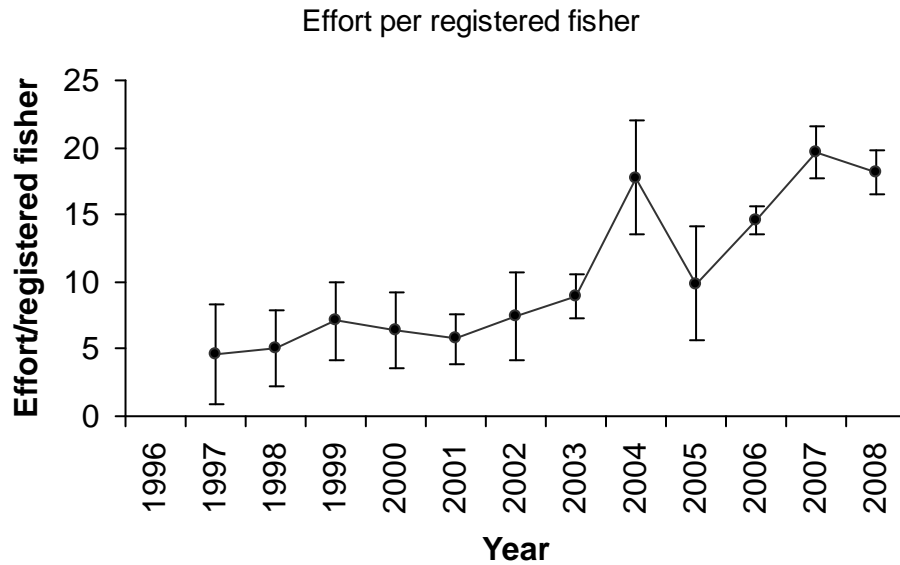


Figure 6. Estimated mean number of days required to harvest a fisher in Michigan during 1997-2008. Vertical bars represent the 95% confidence interval.

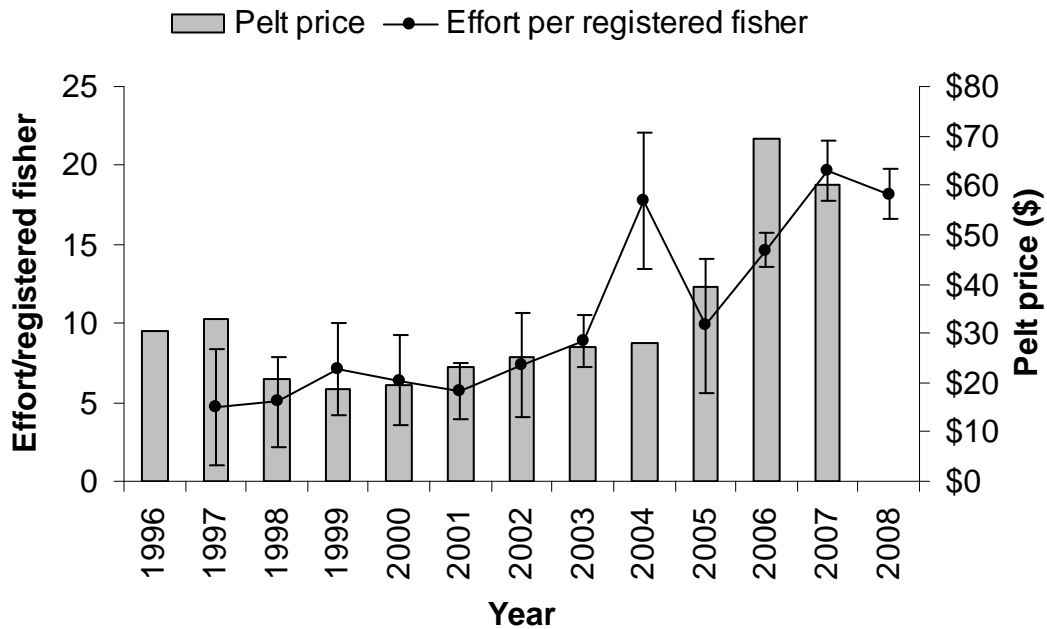


Figure 7. Estimated mean number of days required to harvest a fisher in Michigan and the mean pelt value during 1996-2008. Vertical bars represent the 95% confidence interval. Pelt prices were the mean of values reported from Minnesota (Dexter 2008) and Wisconsin (Kitchell 2008). Pelt price were adjusted for inflation and reported in 2008 dollars. Pelt prices were not available for 2008.