Michigan Department of Natural Resources
Wildlife Division Report No. 3675
August 2019

2018 MICHIGAN SPRING TURKEY HUNTER SURVEY

Brian J. Frawley

ABSTRACT

A survey of turkey hunters was conducted following the 2018 spring hunting season to determine turkey harvest and hunter participation. In 2018, about 68,740 hunters harvested about 29,563 turkeys. Statewide, 43% of hunters harvested a turkey. Nearly 73% of the hunters rated their hunting experience as excellent, very good, or good in 2018. About 93% of the hunters reported they experienced no or only minor interference from other hunters. Compared to 2017, hunter numbers (-8%), hunting effort (-11%), and harvest (-12%) all declined significantly statewide in 2018. However, hunter success and hunter satisfaction in 2018 were unchanged from 2017.

INTRODUCTION

Michigan's spring turkey (*Meleagris gallopavo*) hunting season was based originally on an area and quota system. This system was set up primarily to distribute hunters across geographic areas (management units) and time (hunt periods). As the turkey population has expanded statewide, license types were created that allowed hunters to hunt in multiple management units. The goal of the current system has been to provide hunting opportunities while maintaining acceptable levels of hunter satisfaction (Luukkonen 1998).

In 2018, nearly the entire state was open for wild turkey hunting from April 23 through May 31 (Figure 1). The area open for turkey hunting (58,114 square miles) was the same as last year. The statewide hunting area was divided into 13 management units (Figure 1). Hunting licenses were available on these management units for three types of hunts: (1) quota [limited licenses available] hunts on both public and private lands in a specific management unit, (2) quota hunt on private lands in southern Michigan [Hunt

301 in Unit ZZ], and (3) a guaranteed hunt (no quota) that included all units [Hunt 234], but excluded public lands in the Southern Lower Peninsula (SLP).

People interested in obtaining a turkey hunting license could enter into a random drawing (lottery) conducted by the Department of Natural Resources (DNR) or purchase a license not allocated through the lottery (i.e., left-over licenses and licenses for Hunt 234). Each applicant in the lottery could select up to two hunt choices (any combination of quota and unlimited quota hunts). The lottery consisted of two drawings. The first drawing was used to select applicants based on their preferred hunt choice. The second drawing was among applicants who were not successful in the first drawing and was based on the hunter's second choice for a hunt. Any licenses available after the drawing was completed were made available on a first-come, first-served basis to applicants that were unsuccessful in the drawing. Unsuccessful applicants could purchase one leftover license or a license for Hunt 234. Beginning one week after licenses were available to unsuccessful applicants, all remaining licenses were made available to nonapplicants. Hunters were allowed to purchase one license and take one bearded turkey with the harvest tag issued with their license. Hunters could use a bow and arrow, crossbow, or shotgun with number 4 or smaller shot (including a muzzleloading shotgun) to hunt turkeys.

A limited number of licenses were available for quota hunts, and they were valid only in a certain management unit and only during a limited time period (7-39 days). Most quota hunts began before May 7 and lasted for seven days. A private land management unit (Unit ZZ) was created in 2002 that included all private lands in southern Michigan (Figure 1). Hunters who selected Hunt 301 could hunt the first two weeks of the season (April 23-May 5) anywhere on private lands in Unit ZZ. This unit and hunt period was created to provide additional hunting opportunity and increased flexibility for hunters who had difficulty finding time to hunt during shorter quota hunts.

Licenses for Hunt 234 could be used in any management unit. They were valid on public and private lands, except in Unit ZZ, where they were only valid on private lands or on Fort Custer military lands. Hunt 234 started later than most quota hunts but lasted for 25 days (May 7-31). Licenses for Hunt 234 were sold as a leftover license with no quota and could be purchased throughout the entire spring turkey hunting season.

The Pure Michigan Hunt (PMH) was a unique multi-species hunting opportunity offered for the first time in 2012. Individuals could purchase an unlimited number of applications for the PMH. Three individuals were randomly chosen from all applications, and winners received elk, bear, spring turkey, fall turkey, and antlerless deer hunting licenses and could participate in a reserved waterfowl hunt on a managed waterfowl area. The turkey hunting licenses were valid for all areas open for hunting turkey and during all turkey hunting periods. Furthermore, the PMH license holder could hunt any season until their turkey harvest tag was filled.

A mentored youth hunting program started in 2012. Under this program, a mentored youth hunting license was created and could be purchased by youth hunters aged 9 and younger. The youth hunter had to participate with a mentor who was at least 21 years old. The mentored youth hunting license allowed the youth hunter to hunt small game,

turkey, deer, trap furbearers, and fish for all species. A turkey kill tag issued under the mentored youth hunting license was valid for one turkey during any hunting period, in any open hunt unit, on private or public land. No application was required to purchase the mentored youth license.

The DNR and the Natural Resources Commission have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are a management tool used by the Wildlife Division to accomplish its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are the primary objectives of this survey.

METHODS

The Wildlife Division provided all hunters the option to report voluntarily information about their turkey hunting activity via the internet. This option was advertised in the hunting regulation booklet. Hunters could report information anytime during the hunting season. Hunters reported whether they hunted, the days spent afield, whether they harvested a turkey, type of device used while hunting (i.e., firearm, crossbow, or bow and arrow), and whether other hunters caused interference during their hunt (none, minor, some irritation, or major problem). Successful hunters were also asked to report where their turkeys were taken (public or private land), date of harvest, and beard length of the harvested bird. Birds with a beard less than six inches were classified as juveniles (one-year-old), while birds with longer beards were adults (two years old or greater; Kelly, 1975). Finally, hunters were asked to rate their overall hunting experience (excellent, very good, good, fair, or poor), and indicate the status of the turkey population in their hunting area (increasing, decreasing, stable, or unknown).

Following the 2018 spring turkey hunting season, a questionnaire (Appendix A) was sent to 13,425 randomly selected people that had purchased a turkey hunting license (resident turkey, senior resident turkey, nonresident turkey, mentored youth, and Pure Michigan hunting licenses) and had not already voluntarily reported harvest information via the internet. Hunters receiving the questionnaire were asked to report the same information that was collected from hunters that reported voluntarily on the internet.

Estimates were calculated using a stratified random sampling design that included 18 strata (Cochran 1977). Hunters were stratified based on the management unit where their license was valid (13 management units). Hunters who purchased a license that could be used in multiple management units (mentored youth hunters, PMH license holders, and licenses for hunts 234 and 301) were treated as separate strata (strata 14-17). Moreover, people that had voluntarily reported information about their hunting activity via the internet were treated as a separate stratum (eighteenth stratum).

A 95% confidence limit (CL) was calculated for each estimate. This CL could be added to and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval was 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 based on information collected from random samples of hunting license buyers. Thus,

these estimates were subject to sampling errors (Cochran 1977). Estimates were not adjusted for possible response or nonresponse biases.

Statistical tests are used routinely to determine the likelihood that 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 were equivalent to stating the difference between the means was larger than would be expected 95 out of 100 times (P<0.05), if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during early July 2018, and nonrespondents were mailed up to two follow-up questionnaires. Although 13,425 people were sent the questionnaire, 90 surveys were undeliverable resulting in an adjusted sample size of 13,335. Questionnaires were returned by 6,861 people, yielding a 51% adjusted response rate. In addition, 3,491 people voluntarily reported information about their hunting activity via the internet before the random sample was selected.

RESULTS AND DISCUSSION

In 2018, licenses were purchased by 84,311 people, a decrease of about 5% from 2017 (Table 1). Nearly equal proportions of the three main license types (i.e., quota hunts, Hunt 234, and Hunt 301) were sold in 2018 (Figure 2). About 36% of the licenses were valid for in a single unit (i.e., quota hunts), 34% were valid for Hunt 234, and 28% were valid for Hunt 301. Among the hunters buying a license for a quota hunt, 46% purchased a license that was awarded in the drawing and 54% purchased a left-over license (Figure 3). More quota licenses were purchased as a left-over license than purchased by people that were awarded a quota license in the drawing. Overall, 17% of the licenses sold were awarded through the drawing process (i.e., 13,960 of 84,311 licenses).

Most of the people buying a license were males (92%), and the average age of the license buyers was 45 years (Figure 4). Nearly 10% (8,134) of the license buyers were younger than 17 years old. Mentored youth hunting licenses were purchased by 2,089 youths in 2018, versus 2,222 licenses purchased in 2017 (6% decline).

The number of people buying a turkey hunting license in 2018 decreased by about 29% in ten years from 2008 (118,015 people purchased a license in 2008). There were fewer license buyers for age classes between 10 and 61 years of age in 2018, compared to 2008 (Figure 5). However, there were increased hunter numbers among the youngest and oldest age classes in 2018. The increased hunter numbers in the oldest age classes likely represented the rising share of older people in the population as the baby-boom generation aged and life expectancies have increased. The increased participation among the youngest hunters reflected the lowering of the minimum age requirements. In 2018, there was no minimum age limit to hunt turkeys; while hunters had to be at least 10 years old to participate in 2008.

4

About 82% (±1%) of license buyers hunted turkeys (68,740 hunters). Most of these hunters were males (63,572 ± 868), although nearly 8% (±1%) of the hunters were females (5,168 ± 478). The estimated number of active hunters in 2018 declined significantly by 8% from 2017 (68,740 in 2018 versus 74,450 in 2017). Counties listed in descending order with more than 1,800 hunters afield included Allegan, Montcalm, and Kent (Table 3).

Hunters spent an estimated 270,333 days afield pursuing turkeys (3.9 ± 0.1 days/hunter) and harvested approximately 29,563 birds (Figure 6). Counties listed in descending order with hunters taking more than 800 turkeys included Allegan, Kent, and Montcalm (Table 3).

About 15% (±2%) of the harvested birds were juvenile males (4,515 ± 457); 84% (±2%) were adult males (24,693 ± 884), and about 1% were bearded females (190 ± 91). Additionally, the age of a small number of harvested birds (<1%) was unknown (164 ± 88) because hunters failed to report a beard length.

Hunting effort and the number of turkeys harvested were generally highest during the earliest hunting periods (Figures 7-9). For turkeys that the harvest date was known, 44% of these birds were taken during the first seven days (April 23-29). Daily hunter success generally was more than 10% from April 23 through May 13. Daily hunter success was generally below 10% during May 14-28. Hunting effort and harvest generally were greater on the weekends than weekdays.

About 81% of turkey hunters hunted solely on private land; 13% hunted on public land only, and 5% hunted on both private and public lands (Table 4). Of the 29,563 turkeys harvested in 2018, 91% ± 1% were taken on private land (26,817 ± 902 birds). About 9% ± 1% of the harvest (2,733 ± 347 birds) was taken on public land.

Eighteen percent of turkey hunters believed turkey numbers were increasing in their hunting area (Table 5); while, 45% thought turkey numbers were stable, 18% thought turkey were decreasing; 17% of turkey hunters were uncertain about the status of turkeys, and 1% did not comment on the status of turkeys.

Hunter satisfaction is one measure used to assess the turkey management program in Michigan. Of the estimated 68,740 people hunting turkeys in 2018, 73% ± 1% of the hunters rated their hunting experience as either excellent (15,610 ± 758 hunters), very good (17,897 ± 770), or good (18,686 ± 841) (Table 6). Nearly 16% ± 1% of the hunters rated their experience as fair (10,971 ± 690 hunters). Only 10% ± 1% of the hunters rated their experience as poor (7,019 ± 577 hunters). About 1% of the hunters (557 ± 169 hunters) failed to rate their hunting experience.

Hunter satisfaction is affected by many factors such as hunting success and whether hunting activities were completed without interference (Luukkonen 1998). In 2018, 77% ± 1% of the hunters reported no hunter interference; 17% ± 1% reported minor interference; 5% ± 1% reported some irritation caused by hunter interference, and 1% reported hunter interference was a major problem (Table 7).

Although interference can affect hunter satisfaction, hunter satisfaction was more closely associated with hunter success (Figures 11 and 12). Hunter success was greatest for hunts beginning April 23; however, satisfaction varied little among most of the hunt periods (Table 8).

Compared to 2017, hunter numbers (-8%), hunting effort (-11%), and harvest (-12%) declined significantly statewide in 2018 (Table 9); however, hunter success and hunter satisfaction were not significantly different between 2017 and 2018. In addition, the proportions of hunters that indicated they experienced no or only minor interference with another hunter were similar in both 2017 and 2018 (Table 10).

Most hunters (89 ± 1%) used firearms while hunting turkeys, although 5% ± 1% of the hunters used archery equipment (compound, recurve, or long bows), and 6% ± 1% used a crossbow. Most hunters (84% ± 1%) used a firearm to harvest their turkeys, while 3% ± 1% used archery equipment, and 3% ± 1% used a crossbow. About 40% of hunters using a firearm harvested a turkey, while 21% of hunters using a crossbow took a turkey, and 20% of hunters using another type of bow (longbows, recurve, or compound bows) took a turkey (Table 11).

ACKNOWLEDGEMENTS

LITERATURE CITED

Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York. USA.

Kelly, G. 1975. Indexes for aging eastern wild turkeys. Proceedings of the National Wild Turkey Symposium. 3:205-209.

Luukkonen, D. R. 1998. Spring wild turkey hunting regulation issues in Michigan. Wildlife Division Issue Review Paper 4. Michigan Department of Natural Resources, Lansing, 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.

Table 1. Number of hunting licenses available and people applying for licenses during the 2018 Michigan spring turkey hunting season.

Management unit or hunt period	Licenses available (quota)	Number of eligible applicants[a]	Number of applicants successful in drawing	Number of licenses remaining after drawing	Number of licenses purchased by successful applicants[b]	Number of licenses purchased by unsuccessful applicants[b]	Number of licenses purchased by people not in the drawing[b]	Number of licensees[b]
A	5,500	1,025	1,028	4,204	686	0	1,025	1,711
B	1,000	24	25	982	15	0	31	46
E	1,700	1,571	1,522	42	1,150	2	171	1,323
F	5,000	2,661	2,679	2,008	1,973	2	1,008	2,983
J	4,000	978	985	2,893	692	0	963	1,655
K	8,500	6,893	6,728	1,062	4,929	25	1,612	6,566
M	6,000	792	794	5,264	595	0	3,949	4,544
ZA	4,800	1,115	1,131	3,418	866	0	1,708	2,574
ZB	2,600	566	568	1,973	438	0	709	1,147
ZC	2,400	871	875	1,382	610	0	1,102	1,712
ZD	40	74	40	0	22	0	0	22
ZE	2,000	1,277	1,260	559	946	4	714	1,664
ZF	5,600	1,360	1,369	4,041	1,038	1	3,059	4,098
Hunt 234	NA	NA	NA	NA	433	46	28,051	28,530
Hunt 301	35,000	3,418	3,447	31,136	2,820	13	20,811	23,644
Pure MI Hunts	3	NA	NA	NA	NA	NA	NA	3
Mentored Hunts	NA	NA	NA	NA	NA	NA	NA	2,089
Statewide	84,143	22,625	22,451	58,964	17,213	93	64,913	84,311

[a]Number of eligible applicants selecting the management unit as their first choice to hunt.
[b]If a licensee purchased more than one license, only the latest purchase is included in the summary of licenses purchased.

Table 2. Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2018 Michigan turkey hunting season.

Management unit	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)												
A	1,455	78	5,422	486	486	98	33	6	62	7	92	4
B	35	6	104	25	20	7	57	18	82	14	82	14
E	1,158	51	3,763	311	395	68	34	6	62	6	95	3
F	2,536	131	8,657	775	742	153	29	6	60	6	94	3
J	1,339	90	5,185	644	444	99	33	7	67	7	97	3
K	5,709	287	17,763	1,517	2,034	380	36	6	62	7	94	3
M	3,077	284	17,750	3,131	1,035	247	34	7	69	7	95	4
ZA	1,956	151	6,539	861	828	162	42	8	69	7	91	5
ZB	943	61	3,196	429	327	70	35	7	70	7	89	5
ZC	1,397	101	4,561	602	454	112	32	8	72	7	83	6
ZD	14	8	46	29	6	6	40	41	47	41	93	4
ZE	1,389	88	4,762	625	389	97	28	7	72	7	85	6
ZF	3,382	218	14,000	1,968	1,390	268	41	7	75	7	88	5
Pure MI Hunt	3	0	15	0	3	0	100	0	100	0	0	0
Subtotal	24,395	538	91,763	4,359	8,552	615	35	2	67	2	92	1
Hunt period 301 with quota (Private lands in Management Unit ZZ; April 23-May 6, 2018)												
ZA	5,054	386	17,811	1,799	2,859	305	57	4	80	3	96	2
ZB	2,118	269	7,201	1,136	1,075	195	51	7	76	6	92	4
ZC	2,984	311	9,288	1,235	1,696	240	57	6	83	4	93	3
ZD	448	129	1,704	616	155	75	35	14	74	13	98	5
ZE	5,455	395	18,437	1,797	2,865	304	53	4	79	3	97	1
ZF	4,565	371	16,970	1,758	2,520	288	54	5	81	4	94	2
Unknown	323	111	1,014	417	0	0	0	0	48	17	90	11
Subtotal	20,542	322	72,425	2,568	11,170	469	54	2	80	2	95	1

[a]Number of hunters does not add up to statewide total because mentored youth and hunters with licenses for hunts 234 and 301 can hunt in more than one unit. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2018 Michigan turkey hunting season.

Management unit	Hunters[a] Total	Hunters[a] 95% CL	Hunting efforts (days)[a] Total	Hunting efforts (days)[a] 95% CL	Harvest[a] Total	Harvest[a] 95% CL	Hunter success %	Hunter success 95% CL	Hunter satisfaction[b] %	Hunter satisfaction[b] 95% CL	Noninterfered hunters[c] %	Noninterfered hunters[c] 95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 7-31, 2018)												
A	630	165	3,606	1,285	156	82	25	11	53	13	100	0
B	28	35	58	78	14	25	50	62	100	0	100	0
E	1,528	256	6,052	1,328	701	176	46	9	74	8	96	4
F	1,368	241	6,019	1,347	309	112	23	7	69	8	96	4
J	711	172	3,281	1,049	312	115	44	12	73	11	96	5
K	4,595	413	20,604	2,557	1,651	259	36	5	69	5	93	2
M	73	55	309	270	1	0	1	1	44	37	100	0
ZA	4,284	403	18,671	2,364	1,929	281	45	5	74	4	96	2
ZB	1,417	246	6,167	1,484	691	174	49	9	79	7	94	4
ZC	1,389	242	5,307	1,181	629	164	45	9	83	7	96	3
ZD	171	85	1,002	747	59	49	35	24	91	14	85	19
ZE	3,899	386	16,452	2,241	1,666	261	43	5	75	5	93	3
ZF	2,841	338	12,245	1,940	1,225	226	42	6	76	5	94	3
Unknown	262	110	1,151	616	0	0	0	0	45	21	85	15
Subtotal	22,305	471	100,922	4,425	9,343	527	42	2	73	2	94	1

[a]Number of hunters does not add up to statewide total because mentored youth and hunters with licenses for hunts 234 and 301 can hunt in more than one unit. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 2 (continued). Number of hunters, hunting efforts, harvest, hunter success, hunter satisfaction, and hunter interference during the spring 2018 Michigan turkey hunting season.

Management unit	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)												
A	43	18	124	55	6	7	14	15	79	17	93	11
B	0	0	0	0	0	0	0	0	0	0	0	0
E	57	21	185	78	18	12	32	17	79	15	84	13
F	45	18	116	58	9	8	20	17	80	17	80	17
J	33	16	146	95	12	10	36	23	91	14	91	14
K	179	35	651	156	54	20	30	9	80	8	83	8
M	63	22	242	104	24	13	38	17	90	10	95	7
ZA	330	46	1,054	204	100	27	30	7	79	6	96	3
ZB	113	29	412	166	48	19	42	13	92	7	95	6
ZC	126	30	365	112	40	17	31	11	83	9	91	7
ZD	27	14	69	41	3	5	11	17	67	25	100	0
ZE	250	41	740	156	62	21	25	7	84	6	92	5
ZF	292	44	1,086	255	122	30	42	8	88	5	94	4
Unknown	9	8	33	40	0	0	0	0	67	44	67	44
Subtotal	1,498	57	5,224	388	497	54	33	3	83	3	92	2
Statewide	68,740	786	270,333	6,733	29,563	937	43	1	73	1	93	1

[a]Number of hunters does not add up to statewide total because mentored youth and hunters with licenses for hunts 234 and 301 can hunt in more than one unit. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3. Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2018 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Alcona	766	165	3,209	981	145	67	19	8	52	11	88	7
Alger	196	122	1,144	795	1	0	1	0	54	32	100	0
Allegan	2,232	325	7,932	1,420	1,037	232	46	8	80	6	91	5
Alpena	630	137	2,757	813	176	71	28	10	56	12	96	4
Antrim	660	145	2,343	654	273	97	41	11	77	10	100	0
Arenac	579	139	2,209	673	208	83	36	12	79	9	96	5
Baraga	67	74	381	501	0	0	0	0	0	0	100	0
Barry	1,512	269	5,598	1,269	596	164	39	9	74	8	95	4
Bay	442	134	1,430	537	202	92	46	15	87	10	97	5
Benzie	478	183	2,009	883	111	80	23	15	56	20	93	12
Berrien	816	200	3,582	1,051	337	126	41	12	75	11	88	9
Branch	838	184	3,538	1,012	435	132	52	11	77	9	92	6
Calhoun	1,232	216	3,995	929	574	149	47	9	75	8	90	6
Cass	754	186	2,909	908	308	119	41	12	79	11	91	7
Charlevoix	409	109	1,386	424	188	76	46	14	77	12	93	6
Cheboygan	387	107	1,685	588	75	49	19	12	52	15	95	6
Chippewa	152	104	539	383	51	61	33	33	82	26	100	0
Clare	1,161	183	4,440	1,001	404	113	35	8	59	8	96	3
Clinton	1,131	213	4,013	958	551	151	49	10	82	7	91	6
Crawford	688	162	2,529	773	184	83	27	11	77	10	97	4
Delta	434	174	1,912	927	177	112	41	21	69	20	100	0

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2018 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Dickinson	480	183	2,165	969	129	95	27	17	76	17	95	9
Eaton	948	190	3,996	1,117	427	129	45	10	69	9	100	0
Emmet	373	107	1,388	551	117	60	31	14	65	15	97	5
Genesee	1,132	204	3,594	840	505	135	45	9	81	7	95	4
Gladwin	961	169	3,147	721	502	133	52	9	79	7	95	4
Gogebic	146	104	1,184	1,055	78	74	53	36	100	0	83	27
Gd. Traverse	685	230	2,681	979	237	147	35	17	66	16	88	12
Gratiot	1,009	202	3,671	1,065	495	142	49	10	75	9	93	5
Hillsdale	1,404	232	5,111	1,182	615	154	44	8	79	7	96	3
Houghton	124	95	741	826	3	0	2	2	62	38	100	0
Huron	1,268	206	4,820	1,026	590	146	47	8	76	7	89	5
Ingham	1,196	216	4,060	953	577	149	48	9	78	8	98	3
Ionia	1,009	198	3,816	1,021	484	136	48	10	71	9	87	7
Iosco	639	157	2,533	813	203	90	32	12	72	12	91	7
Iron	586	201	2,948	1,290	215	126	37	18	68	17	92	10
Isabella	1,122	209	3,821	957	467	132	42	9	73	9	97	4
Jackson	1,737	247	6,002	1,146	751	164	43	7	82	6	94	4
Kalamazoo	1,241	241	4,181	1,019	639	176	51	10	84	8	92	6
Kalkaska	566	205	2,303	970	152	118	27	17	57	18	97	4
Kent	1,832	267	6,888	1,356	884	187	48	7	78	6	96	3
Keweenaw	46	61	206	346	22	43	49	66	51	66	100	0

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2018 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Lake	1,080	280	3,845	1,074	271	137	25	11	65	13	90	8
Lapeer	1,443	230	4,568	916	712	164	49	8	84	6	95	4
Leelanau	400	167	990	483	202	126	51	21	78	17	92	9
Lenawee	1,003	197	3,977	1,004	302	108	30	9	62	10	95	4
Livingston	1,431	218	4,711	963	631	147	44	8	83	6	92	4
Luce	0	0	0	0	0	0	0	0	0	0	0	0
Mackinac	15	25	24	25	0	0	0	0	0	0	100	0
Macomb	493	137	1,766	612	230	94	47	14	78	12	90	8
Manistee	363	155	1,583	739	121	103	33	22	47	21	95	7
Marquette	161	107	698	573	8	5	5	4	63	32	100	0
Mason	962	276	2,902	886	267	149	28	13	63	15	94	7
Mecosta	1,130	273	4,416	1,399	443	162	39	12	61	12	92	8
Menominee	617	201	3,176	1,518	280	139	45	17	74	16	100	0
Midland	1,014	199	3,453	819	469	135	46	10	75	9	97	4
Missaukee	576	204	1,787	684	162	94	28	15	61	18	97	4
Monroe	558	144	2,482	941	184	82	33	12	79	10	93	7
Montcalm	1,834	269	6,868	1,284	831	181	45	7	72	7	93	4
Montmorency	551	115	2,100	549	186	74	34	11	58	12	95	5
Muskegon	837	195	3,656	1,262	409	128	49	12	74	11	96	5
Newaygo	1,762	334	5,809	1,312	780	226	44	10	79	8	92	5
Oakland	1,174	195	3,440	700	550	141	47	9	76	8	87	6

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 3 (continued). Estimated number of hunters, hunting effort, harvest, hunter success, hunter satisfaction, and hunter interference during the 2018 Michigan spring turkey hunting season. Estimates combined quota and unlimited quota hunts in each county.

County	Hunters[a]		Hunting efforts (days)[a]		Harvest[a]		Hunter success		Hunter satisfaction[b]		Noninterfered hunters[c]	
	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
Oceana	918	254	3,439	1,084	331	146	36	13	73	13	97	4
Ogemaw	775	174	2,887	836	273	105	35	11	66	11	94	5
Ontonagon	122	95	1,296	1,203	3	0	2	2	42	39	79	32
Osceola	1,171	300	3,571	1,015	473	193	40	13	63	13	96	4
Oscoda	591	151	2,324	662	155	76	26	11	67	13	99	1
Otsego	426	114	1,848	734	149	72	35	13	71	13	92	8
Ottawa	1,537	257	5,813	1,188	778	183	51	9	81	7	92	5
Presque Isle	441	117	1,737	588	150	69	34	13	68	13	93	6
Roscommon	891	185	3,035	752	193	88	22	9	55	11	95	5
Saginaw	1,333	229	5,277	1,186	693	165	52	9	79	7	94	4
St. Clair	1,562	238	5,445	1,043	799	172	51	8	82	6	91	4
St. Joseph	1,056	231	4,509	1,401	525	163	50	11	75	10	91	7
Sanilac	1,604	240	4,943	905	759	167	47	8	77	6	96	3
Schoolcraft	235	133	1,080	696	70	74	30	27	79	23	81	23
Shiawassee	1,054	201	3,747	892	584	150	55	10	80	8	98	3
Tuscola	1,699	234	6,837	1,395	779	164	46	7	76	6	91	4
Van Buren	1,098	232	4,073	1,318	500	150	46	11	82	8	90	7
Washtenaw	1,462	227	4,546	852	660	155	45	8	84	6	91	4
Wayne	89	54	286	214	39	36	44	30	80	23	100	0
Wexford	764	235	3,025	1,077	190	123	25	14	55	16	97	3
Unknown	2,407	342	9,570	1,839	296	117	12	5	53	7	90	4

[a]Number of hunters does not add up to statewide total because hunters can hunt in more than one county. Column totals for hunting effort and harvest may not equal statewide totals because of rounding errors.
[b]Proportion of hunters that rated their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.

Table 4. Estimated number and proportion of hunters hunting on private and public lands during the spring 2018 Michigan turkey hunting season.[a]

Management unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Hunt periods with quotas (General limited quota hunt periods)																
A	1,127	103	77	6	176	65	12	4	144	60	10	4	9	16	1	1
B	20	7	57	18	2	3	6	9	9	6	24	15	4	4	12	12
E	839	73	72	5	239	58	21	5	74	35	6	3	6	10	0	1
F	1,182	176	47	7	1,078	172	43	6	211	92	8	4	65	54	3	2
J	886	113	66	7	221	74	17	5	223	78	17	6	9	18	1	1
K	3,894	411	68	6	1,303	331	23	6	391	196	7	3	121	116	2	2
M	1,941	297	63	8	610	204	20	6	525	194	17	6	0	0	0	0
ZA	1,041	171	53	8	755	158	39	8	146	81	7	4	14	26	1	1
ZB	342	71	36	7	534	77	57	7	47	30	5	3	20	21	2	2
ZC	626	124	45	8	698	125	50	8	51	42	4	3	23	30	2	2
ZD	8	8	53	41	7	6	47	41	0	0	0	0	0	0	0	0
ZE	478	106	34	7	847	117	61	7	34	32	2	2	30	32	2	2
ZF	2,250	283	67	7	918	233	27	7	213	125	6	4	0	0	0	0
PMH	3	0	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	14,637	676	60	2	7,389	556	30	2	2,067	348	8	1	301	142	1	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 23-May 6, 2018)																
ZA	5,054	386	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB	2,118	269	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC	2,984	311	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD	448	129	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	5,455	395	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF	4,565	371	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	323	111	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	20,542	322	100	0	0	0	0	0	0	0	0	0	0	0	0	0

[a]Row totals may not equal 100 because of rounding errors.

Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2018 Michigan turkey hunting season.[a]

Manage-ment unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Unlimited quota hunt period (Guaranteed Hunt 234; May 7-31, 2018)																
A	423	136	67	12	103	65	16	10	105	70	17	10	0	0	0	0
B	28	35	100	0	0	0	0	0	0	0	0	0	0	0	0	0
E	1,237	231	81	7	213	98	14	6	65	55	4	4	0	0	0	0
F	641	167	47	9	564	156	41	9	163	85	12	6	0	0	0	0
J	385	127	54	12	228	98	32	11	71	55	10	7	26	35	4	5
K	3,247	357	71	4	909	197	20	4	386	130	8	3	52	49	1	1
M	18	25	25	30	29	35	40	37	13	25	18	30	0	0	0	0
ZA[b]	4,284	403	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZB[b]	1,417	246	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZC[b]	1,389	242	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZD[b]	171	85	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE[b]	3,899	386	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZF[b]	2,841	338	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	235	104	90	13	13	25	5	9	0	0	0	0	13	25	5	9
Subtotal	19,418	529	87	1	1,722	266	8	1	1,073	215	5	1	92	65	0	0

[a]Row totals may not equal 100 because of rounding errors.
[b]Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).
[c]Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 4 (continued). Estimated number and proportion of hunters hunting on private and public lands during the spring 2018 Michigan turkey hunting season.[a]

Manage-ment unit	Private land only				Public land only				Both private and public lands				Unknown land			
	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL	Total	95% CL	%	95% CL
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)																
A	36	16	84	15	4	5	9	11	3	5	7	11	0	0	0	0
B	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
E	57	21	100	0	0	0	0	0	0	0	0	0	0	0	0	0
F	30	15	67	19	15	11	33	19	0	0	0	0	0	0	0	0
J	27	14	82	19	6	7	18	19	0	0	0	0	0	0	0	0
K	131	31	73	9	18	12	10	6	30	15	17	8	0	0	0	0
M	51	19	81	14	3	5	5	7	9	8	14	12	0	0	0	0
ZA	303	44	92	4	18	12	5	3	9	8	3	2	0	0	0	0
ZB	110	28	97	4	3	5	3	4	0	0	0	0	0	0	0	0
ZC	120	29	95	5	6	7	5	5	0	0	0	0	0	0	0	0
ZD	27	14	100	0	0	0	0	0	0	0	0	0	0	0	0	0
ZE	238	40	95	4	9	8	4	3	3	5	1	2	0	0	0	0
ZF	275	43	94	4	12	10	4	3	6	7	2	2	0	0	0	0
Unknown	9	8	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal	1,345	60	90	2	82	24	5	2	72	23	5	2	0	0	0	0
Statewide[c]	55,942	919	81	1	9,180	616	13	1	3,212	410	5	1	419	160	1	0

[a]Row totals may not equal 100 because of rounding errors.
[b]Licenses for the unlimited quota hunt were valid only on private lands in Management Unit ZZ in southern Michigan (Figure 1).
[c]Number of hunters does not add up to statewide total because hunters can hunt in more than one unit for the unlimited quota hunts.

Table 5. Status of turkey population reported by turkey hunters during the spring 2018 Michigan turkey hunting season.

Management unit	Turkey population status (of hunters)[a]				
	Increasing	Decreasing	Stable	Unknown	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	13	30	37	19	1
B	18	18	33	24	6
E	16	21	39	23	0
F	15	24	38	22	1
J	11	20	46	24	0
K	12	27	40	22	0
M	20	25	37	17	1
ZA	11	20	44	21	4
ZB	8	22	44	24	2
ZC	19	16	38	24	2
ZD	0	26	14	60	0
ZE	15	15	44	26	1
ZF	19	15	43	21	2
Pure MI Hunt	0	100	0	0	0
Mean	15	22	40	22	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 23-May 6, 2018)					
ZA	20	18	49	12	1
ZB	23	14	56	7	1
ZC	18	13	55	12	1
ZD	26	16	51	5	2
ZE	22	15	49	14	0
ZF	20	16	48	15	1
Unknown	17	24	34	24	0
Mean	21	15	50	13	1

[a]Row totals may not equal 100 because of rounding errors.

Table 5 (continued). Status of turkey population reported by turkey hunters during the spring 2018 Michigan turkey hunting season.

Manage-ment unit	Turkey population status (of hunters)[a]				
	Increasing	Decreasing	Stable	Unknown	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 7-31, 2018)					
A	11	39	32	18	0
B	0	0	100	0	0
E	15	14	52	19	0
F	26	13	38	23	1
J	19	30	37	14	0
K	15	23	43	19	1
M	1	22	40	37	0
ZA	16	17	52	14	1
ZB	26	11	51	12	0
ZC	16	16	55	12	1
ZD	25	24	26	25	0
ZE	19	14	52	15	1
ZF	23	16	47	14	0
Unknown	10	25	25	30	10
Mean	18	18	47	16	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	7	7	56	30	0
B	0	0	0	0	0
E	26	0	37	37	0
F	13	13	40	33	0
J	0	36	45	18	0
K	13	27	40	20	0
M	24	0	62	14	0
ZA	27	12	36	24	1
ZB	24	11	47	18	0
ZC	21	7	50	21	0
ZD	0	0	67	33	0
ZE	14	16	41	27	1
ZF	22	6	37	34	1
Unknown	0	33	33	33	0
Mean	20	12	42	26	1
Statewide[b]	18	18	45	17	1

[a]Row totals may not equal 100 because of rounding errors.
[b]Statewide mean interference levels (all hunts and periods).

Table 6. How hunters rated their hunting experience during the spring 2018 Michigan turkey hunting season.

Management unit	Satisfaction level (of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Hunt periods with quotas (General limited quota hunt periods)						
A	12	18	31	18	18	2
B	55	21	6	12	6	0
E	16	20	26	23	14	0
F	15	18	28	20	20	0
J	13	22	31	18	15	0
K	19	18	25	19	19	1
M	19	17	33	17	13	1
ZA	24	16	28	18	11	2
ZB	15	26	29	19	11	1
ZC	27	21	24	17	9	2
ZD	7	0	40	26	26	0
ZE	17	27	29	13	12	2
ZF	21	25	28	17	6	2
Pure MI Hunt	0	0	100	0	0	0
Mean	19	20	28	18	14	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 23-May 6, 2018)						
ZA	26	29	26	10	8	2
ZB	29	25	22	14	10	1
ZC	36	25	21	12	5	0
ZD	17	28	30	15	10	0
ZE	28	27	24	12	8	0
ZF	28	27	25	13	6	0
Unknown	10	21	17	34	17	0
Mean	29	27	24	12	8	1

[a]Row totals may not equal 100 because of rounding errors.

Table 6 (continued). How hunters rated their hunting experience during the spring 2018 Michigan turkey hunting season.

Manage-ment unit	Satisfaction level (of hunters)[a]					
	Excellent	Very good	Good	Fair	Poor	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 7-31, 2018)						
A	9	14	30	30	17	0
B	4	4	93	0	0	0
E	24	19	32	20	6	0
F	21	21	28	17	13	1
J	25	19	29	17	8	2
K	19	19	30	18	12	1
M	1	40	3	38	18	0
ZA	21	24	29	18	7	1
ZB	26	22	31	13	7	0
ZC	27	26	30	12	3	2
ZD	9	50	32	1	8	0
ZE	23	29	23	17	7	1
ZF	21	25	30	16	7	0
Unknown	20	15	10	15	35	5
Mean	21	23	29	17	9	1
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)						
A	16	35	28	14	7	0
B	0	0	0	0	0	0
E	37	21	21	21	0	0
F	13	33	33	7	13	0
J	36	18	36	9	0	0
K	15	20	45	10	10	0
M	29	29	33	10	0	0
ZA	33	22	24	18	3	0
ZB	34	26	32	8	0	0
ZC	26	31	26	17	0	0
ZD	22	11	33	33	0	0
ZE	19	31	35	12	4	0
ZF	37	20	31	11	0	1
Unknown	0	33	33	0	33	0
Mean	28	24	31	14	3	0
Statewide[b]	23	23	27	16	10	1

[a]Row totals may not equal 100 because of rounding errors.
[b]Statewide mean satisfaction levels (all hunts and periods).

Table 7. Estimated amount of hunter interference experienced by turkey hunters during the spring 2018 Michigan turkey hunting season.

| Management unit | Interference level (of hunters)[a] | | | | |
	None	Minor	Some irritation	Major problem	No answer
Hunt periods with quotas (General limited quota hunt periods)					
A	79	13	5	1	2
B	57	24	12	0	6
E	80	14	4	0	1
F	71	23	5	1	1
J	82	15	2	1	0
K	76	17	5	1	1
M	72	23	5	0	1
ZA	74	16	4	4	1
ZB	63	26	8	3	1
ZC	64	20	12	3	2
ZD	67	26	7	0	0
ZE	60	24	14	1	0
ZF	71	17	10	0	2
Pure MI Hunt	0	0	100	0	0
Mean	73	19	6	1	1
Hunt 301 with quota (Private lands in Management Unit ZZ; April 23-May 6, 2018)					
ZA	78	17	3	0	1
ZB	77	15	6	2	1
ZC	80	13	4	1	1
ZD	77	21	2	0	0
ZE	81	17	2	0	0
ZF	77	16	5	2	0
Unknown	72	17	10	0	0
Mean	79	16	4	1	0

[a]Row totals may not equal 100 because of rounding errors.

Table 7 (continued). Estimated amount of hunter interference experienced by turkey hunters during the spring 2018 Michigan turkey hunting season.

Manage-ment unit	Interference level (of hunters)[a]				
	None	Minor	Some irritation	Major problem	No answer
Unlimited quota hunt period (Guaranteed Hunt 234; May 7-31, 2018)					
A	93	7	0	0	0
B	54	46	0	0	0
E	77	19	4	0	0
F	80	16	3	1	0
J	75	21	4	0	0
K	77	16	6	0	1
M	97	3	0	0	0
ZA	85	11	3	1	0
ZB	84	10	4	2	0
ZC	79	18	3	0	1
ZD	76	8	8	8	0
ZE	76	17	7	0	1
ZF	76	17	6	1	0
Unknown	70	15	5	5	5
Mean	79	15	5	1	0
Mentored hunts (youth hunters nine years old and younger could hunt during any open season)					
A	72	21	7	0	0
B	0	0	0	0	0
E	68	16	11	5	0
F	80	0	13	7	0
J	73	18	0	9	0
K	63	20	15	2	0
M	86	10	5	0	0
ZA	87	9	3	1	0
ZB	79	16	3	3	0
ZC	83	7	9	0	0
ZD	89	11	0	0	0
ZE	77	15	4	4	1
ZF	77	17	6	0	0
Unknown	67	0	33	0	0
Mean	79	13	6	2	0
Statewide[b]	77	17	5	1	1

[a]Row totals may not equal 100 because of rounding errors.
[b]Statewide mean interference levels (all hunts and periods).

Table 8. Estimated number of hunting efforts, hunters, hunting success, noninterfered hunters, and hunter rating of the 2018 spring turkey hunting season, by hunt periods.

| | Hunt periods beginning | | | | | | | | All periods[a] | |
| | April 23 | | April 30 | | May 7 | | May 14 | | | |
Variable	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL	Estimate	95% CL
Hunting efforts (days)	130,909	4,635	20,770	2,063	112,623	4,926	6,032	1,170	270,333	6,733
Number of hunters	35,797	714	6,487	530	25,013	570	1,444	207	68,740	786
Successful hunters (n)	16,508	669	1,990	364	10,570	587	495	130	29,563	937
Successful hunters (%)	46	2	31	5	42	2	34	8	43	1
Noninterfered hunters (n)[b]	33,515	725	5,991	522	23,506	593	1,259	197	64,270	861
Noninterfered hunters (%)[b]	94	1	92	3	94	1	87	5	93	1
Favorable rating (n)[c]	26,710	739	4,079	475	18,370	638	1,035	182	50,193	989
Favorable rating (%)[c]	75	2	63	5	73	2	72	7	73	1

[a]Row totals may not equal totals for all periods because of rounding errors.
[b]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
[c]Hunters rating their hunting experience as excellent, very good, or good.

Table 9. Comparison of the estimated number of hunters, hunting effort, and harvest between 2017 and 2018 Michigan spring turkey hunting seasons, summarized by regions.

	Hunters (No.)[b]					Hunting efforts (days)					Harvest (No.)[b]				
	2017		2018			2017		2018			2017		2018		
Region[a]	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)	Total	95% CL	Total	95% CL	Change (%)
UP	3,340	264	3,101	295	-7	17,365	2,515	17,494	3,074	1	1,457	266	1,037	245	-29
NLP	22,435	691	20,752	635	-8*	91,206	4,772	79,916	3,890	-12*	8,501	590	7,321	560	-14*
SLP	46,616	776	43,006	744	-8*	185,941	6,106	163,353	5,171	-12*	23,168	785	20,909	747	-10*
Unknown	2,764	357	2,407	342		10,626	1,796	9,570	1,839		308	114	296	117	
Total	74,450	764	68,740	786	-8*	305,139	7,476	270,333	6,733	-11*	33,433	977	29,563	937	-12*

[a]Regions included the Upper Peninsula (UP), the Northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the Southern Lower Peninsula (SLP).
[b]Number of hunters did not add up to statewide total because mentored youth and hunters with a license for the unlimited quota hunt can hunt in more than one unit.
*P<0.05.

Table 10. Comparison of estimated hunter success, hunter satisfaction, and hunt interference between 2017 and 2018 Michigan spring turkey hunting season, summarized by regions.

	Hunter success					Hunter satisfaction[b]					Noninterfered hunters[c]				
	2017		2018		Difference	2017		2018		Difference	2017		2018		Difference
Region[a]	%	95% CL	%	95% CL	(%)		95% CL		95% CL	(%)		95% CL		95% CL	(%)
UP	44	7	33	7	-10	67	7	69	7	1	94	3	95	4	0
NLP	38	2	35	2	-3	67	2	66	2	-1	92	1	94	1	2
SLP	50	1	49	2	-1	77	1	78	1	1	92	1	93	1	1
Total	45	1	43	1	-2	73	1	73	1	0	92	1	93	1	1

[a]Regions included the Upper Peninsula (UP), the Northern Lower Peninsula north of Management Unit ZZ (NLP), and Management Unit ZZ in the Southern Lower Peninsula (SLP).
[b]Hunters rating their hunting experience as excellent, very good, or good.
[c]Proportion of hunters that indicated they experienced no or only minor interference from other hunters.
*P<0.05.

Table 11. Number of turkeys harvested and hunter success, summarized by hunting device, during the spring turkey hunting season in Michigan, 2010-2018.

| | Number of turkey harvested by device | | | | | | | | Hunter success by device[a] | | | | | |
| | Firearm | | Crossbows | | Other bows[b] | | Unknown | | Firearm | | Crossbows | | Other bows[b] | |
Year	Total	95% CL	Total	95% CL	Total	95% CL	Total	95% CL	%	95% CL	%	95% CL	%	95% CL
2010	34,984	1,093	525	161	1,519	279	22	32	41	1	20	6	20	3
2011	28,831	1,017	590	170	1,143	228	23	34	37	1	17	5	17	3
2012	29,611	984	650	172	1,055	214	62	57	39	1	17	4	18	3
2013	30,152	1,038	921	210	1,090	231	80	76	39	1	22	5	18	4
2014	27,746	919	516	143	838	195	9	13	41	1	17	4	21	4
2015	28,272	908	751	188	935	196	81	63	43	1	20	5	21	4
2016	28,422	959	860	200	963	221	142	87	42	1	21	4	21	4
2017	29,389	964	869	194	748	183	2,427	171	43	1	22	4	17	4
2018	24,923	909	905	203	780	206	2,956	244	40	1	21	4	20	5

[a]Hunters harvesting a turkey.
[b]Included longbows, recurve, and compound bows.

Isle Royale County of Keweenaw County (shifted south from correct location)

Keweenaw

Houghton

Ontonagon

Baraga

Gogebic

Unit M is all of the Upper Penisula, except Isle Royale.

Marquette

Iron

Alger

Luce

Schoolcraft

Chippewa

Dickinson

M

Delta

Mackinac

0 10 20   40 Miles

N

Menominee

Beaver Island Group

B

Emmet

Cheboygan

Presque Isle

A

Fox Islands

Charlevoix

J

Antrim

Otsego

Mont-morency

Alpena

Manitou Islands

Leelanau

33

Oscoda

Alcona

72

Legend

Units Open to Hunting

Unit Boundaries

Unit ZZ Boundary

County Boundary Line

Benzie

Grand Traverse

Kalkaska

Crawford

Ogemaw

F

Manistee

Mis-saukee

Ros-common

Iosco

Wexford

K

Osceola

E

Gladwin

Arenac

Mason

Lake

Clare

ZB

Huron

Oceana

Mecosta

Midland

Bay

Tuscola

Sanilac

Neway-go

Isabella

Saginaw

Unit ZZ is a multi-county, private-land only unit which includes all those counties below the bold dotted-line or units starting with a "Z"

Muskegon

Montcalm

Gratiot

ZA

Lapeer

St. Clair

ZC

Kent

Clinton

Shia-wasee

Genesee

Oakland

Macomb

Ottawa

Ionia

Allegan

Barry

Eaton

Ingham

Living-ston

Wayne

ZD

Unit ZZ

ZF

Van Buren

Kalama-zoo

Calhoun

ZE

Jackson

Washtenaw

Cass

St. Joseph

Branch

Hillsdale

Lenawee

Monroe

Berrien

Figure 1. Management units in Michigan open to spring turkey hunting in 2018.
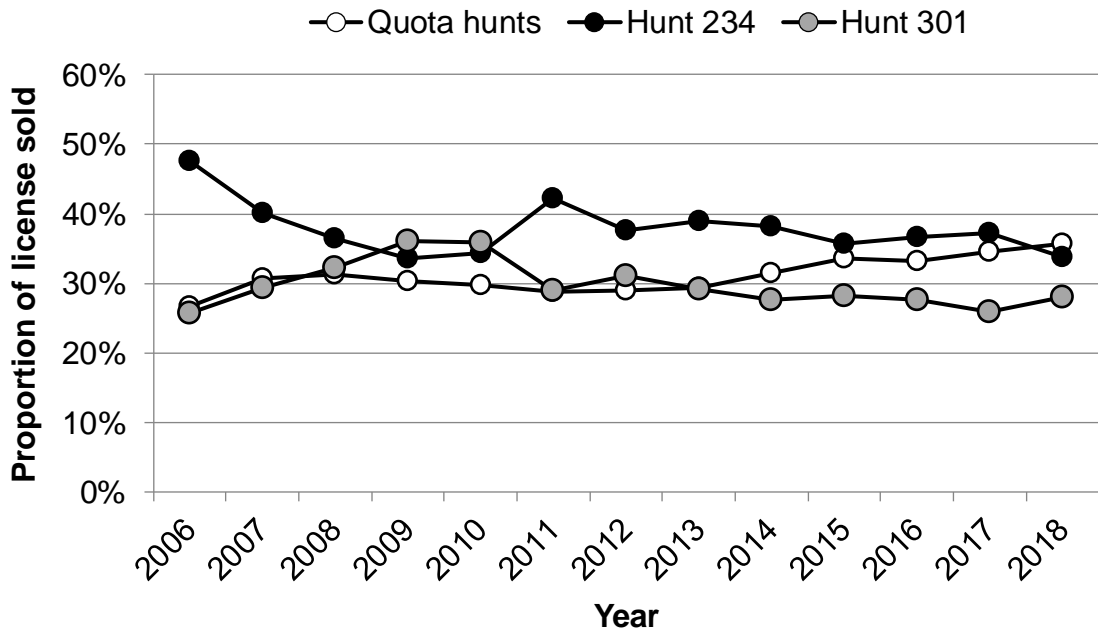
Figure 2. The proportion of spring turkey hunting licenses sold during 2006-2018, summarized separately for license type (quota hunts, Hunt 234, and Hunt 301).
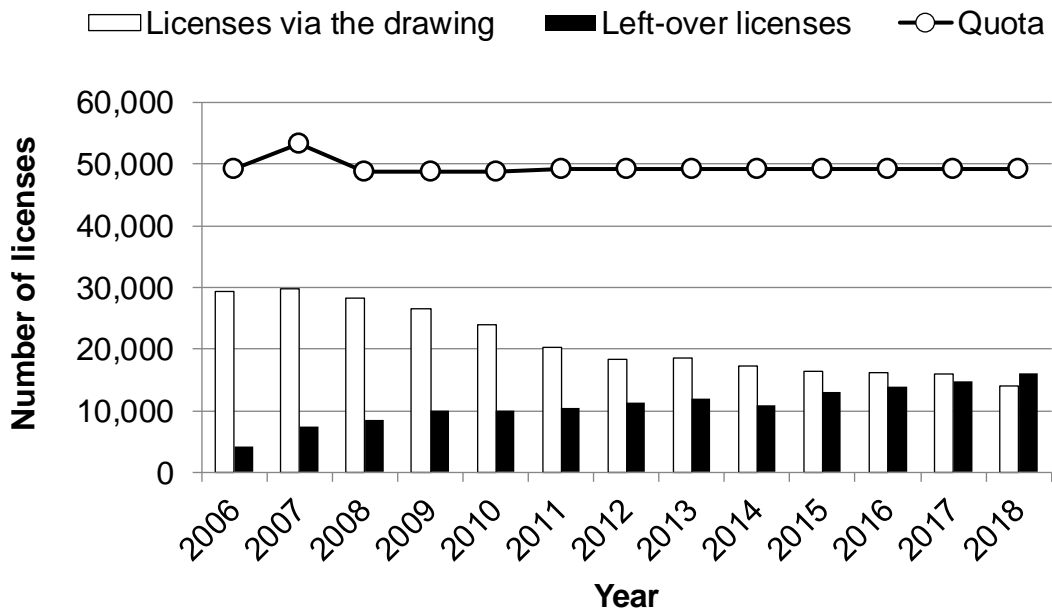
Figure 3. The number of spring turkey hunting licenses available for quota hunts (excluded licenses for hunts 234 and 301, mentored youth licenses and Pure Michigan hunts), the number of quota hunt licenses sold via the drawing, and the number of quota hunt licenses sold as left-over licenses during 2006-2018.
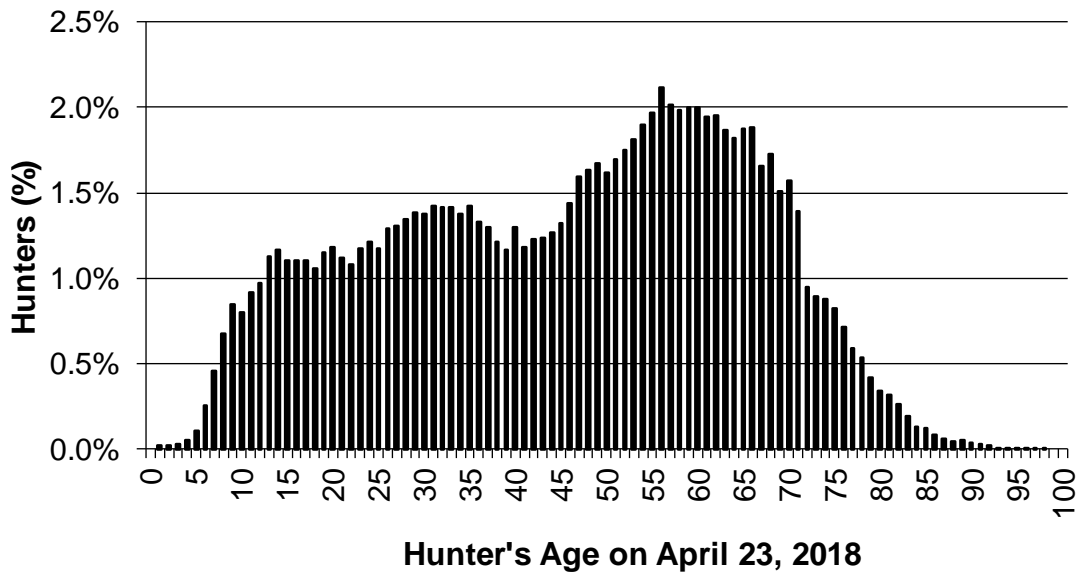
Figure 4. Age of people that purchased a turkey hunting license in Michigan for the 2018 spring hunting season (mean = 45 years). Licenses were purchased by 84,311 people.
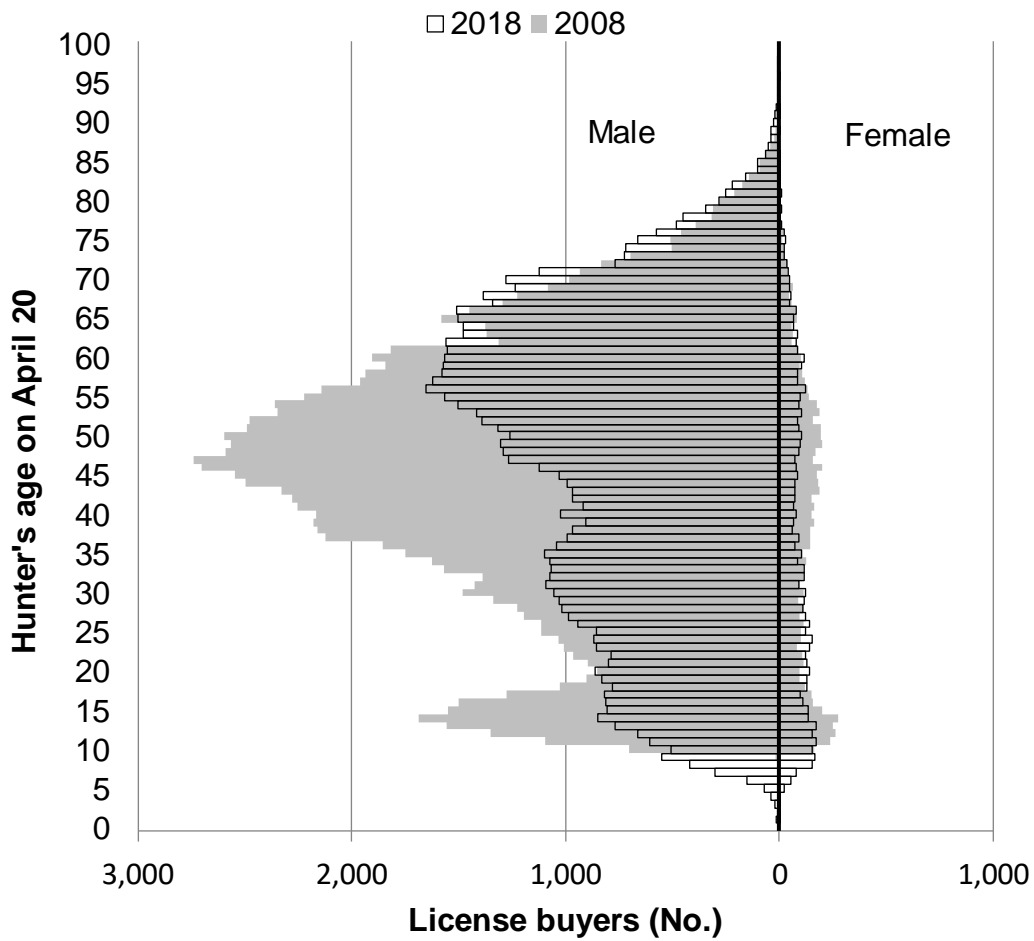
Figure 5. Number of spring turkey hunting license buyers in Michigan by age and sex during 2008 and 2018 hunting seasons. The number of people buying a license was 118,015 in 2008 and 84,311 in 2018.
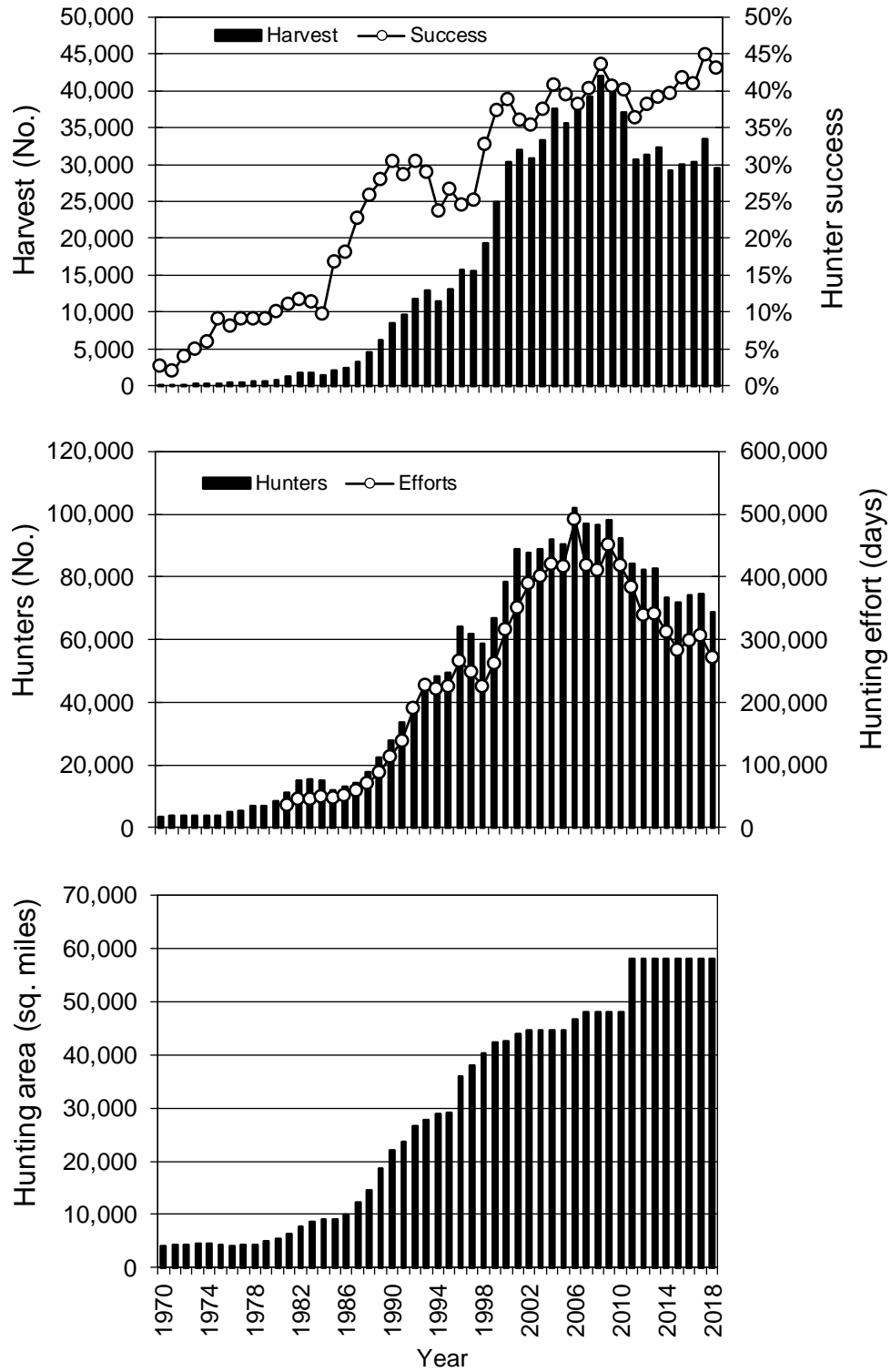
Figure 6. Estimated number of hunters, harvest, hunting efforts, hunter success, and area open to hunting during the Michigan spring turkey hunting season, 1970-2018. Estimates of hunting effort generally were not available before 1981.
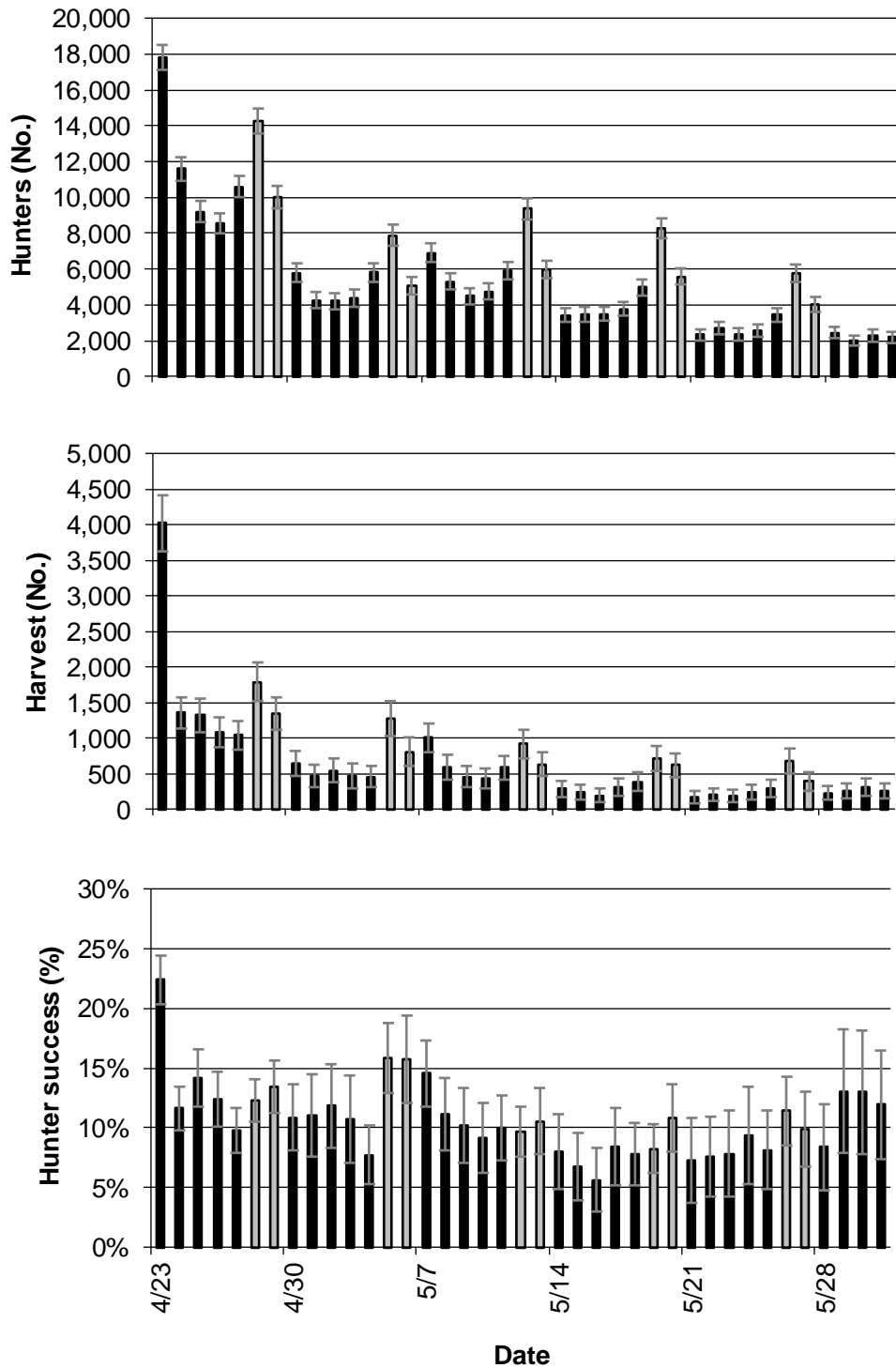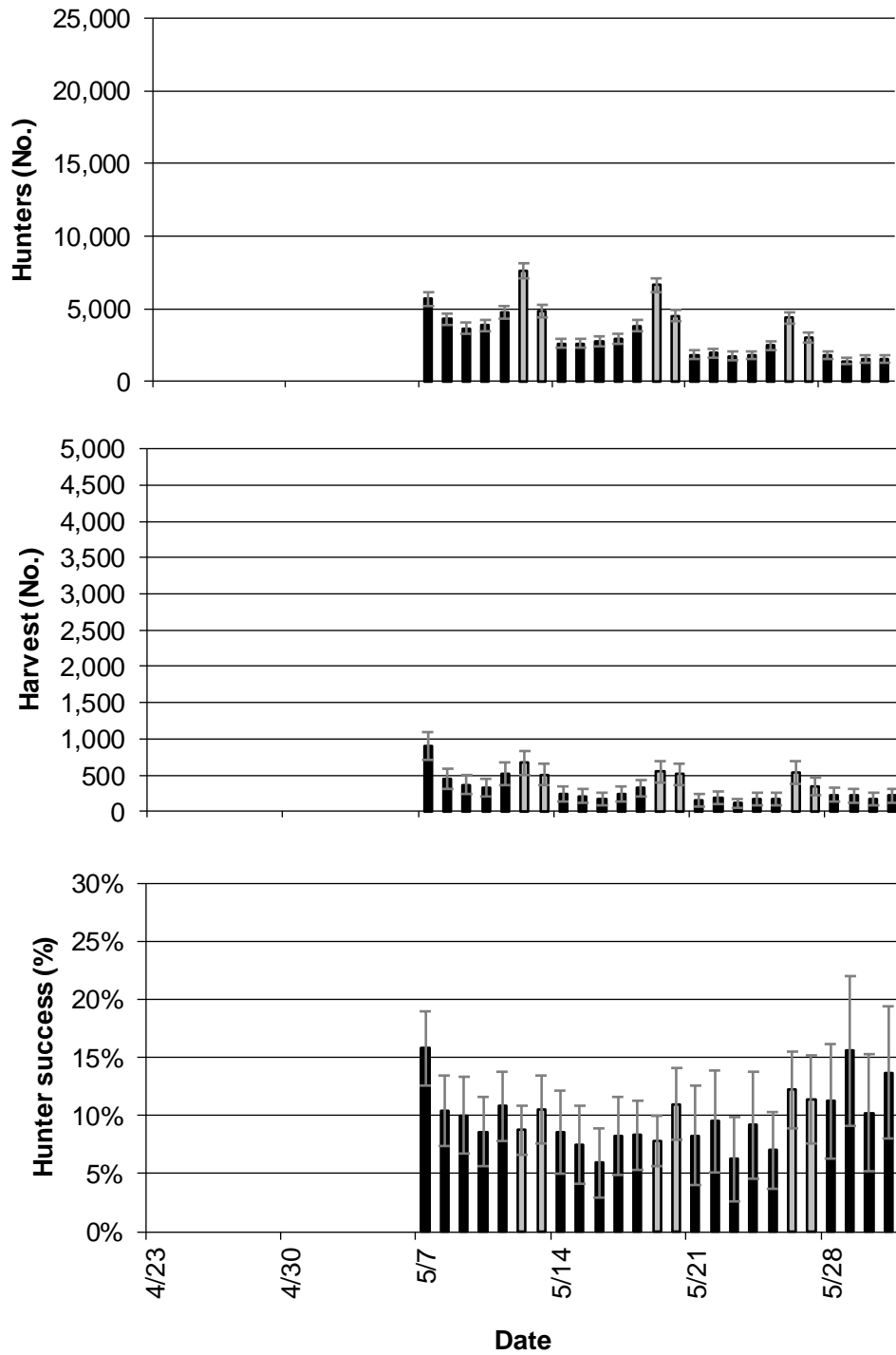
Figure 7. Estimated number of hunters, harvest, and hunter success by date during the 2018 Michigan spring turkey hunting season (includes all hunts). An additional 2,298 ± 337 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

Figure 8. Estimated number of hunters, harvest, and hunter success by date during
Hunt 234 of the 2018 Michigan spring turkey hunting season (May 7-31). An additional
890 $\pm$ 200 birds were taken on unknown dates. Gray-shaded bars indicate weekends.
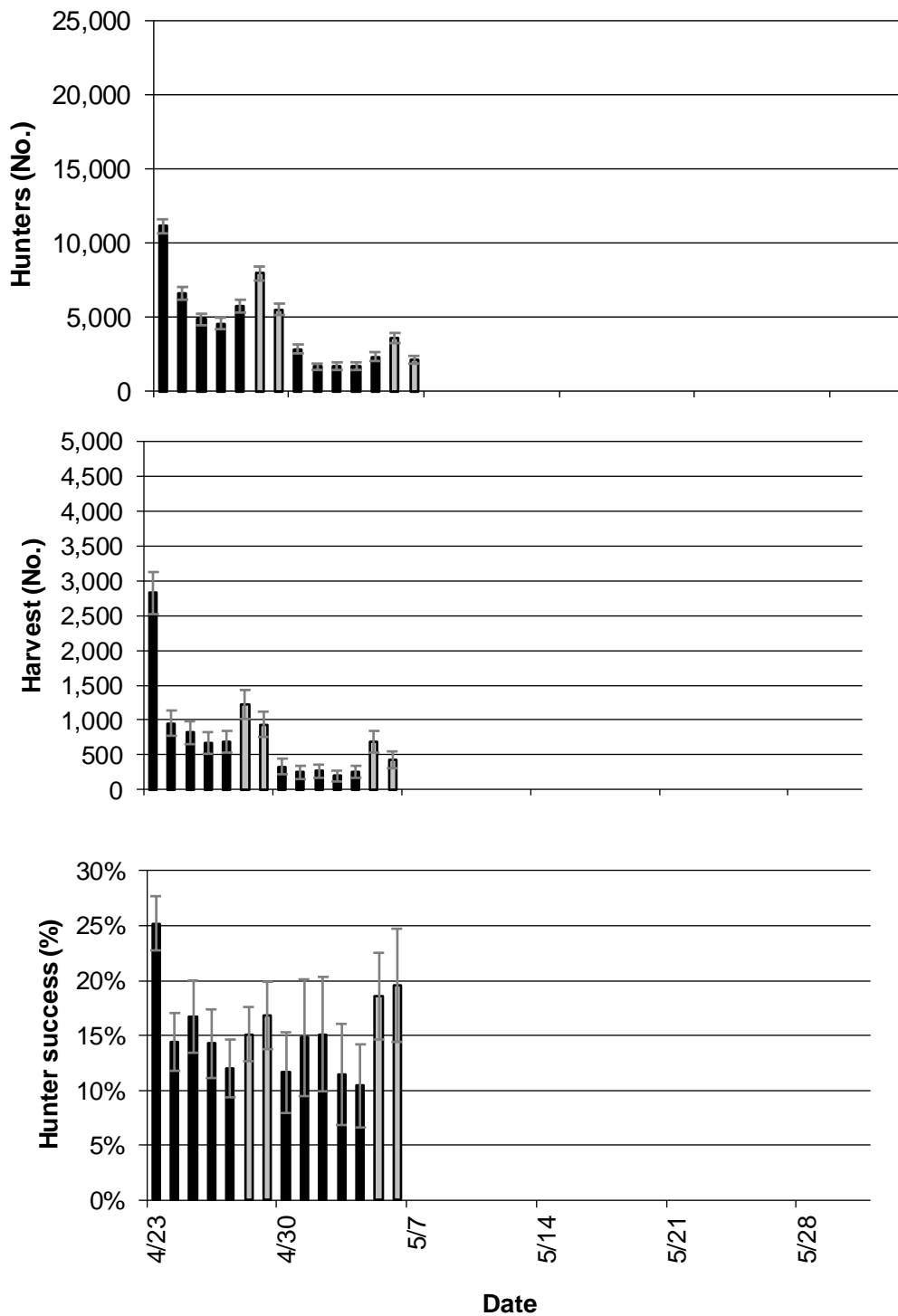Vertical bars represent the 95% confidence interval.

Figure 9. Estimated number of hunters, harvest, and hunter success by date during Hunt 301 of the 2018 Michigan spring turkey hunting season (April 23-May 6). An additional 669 $\pm$ 159 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.
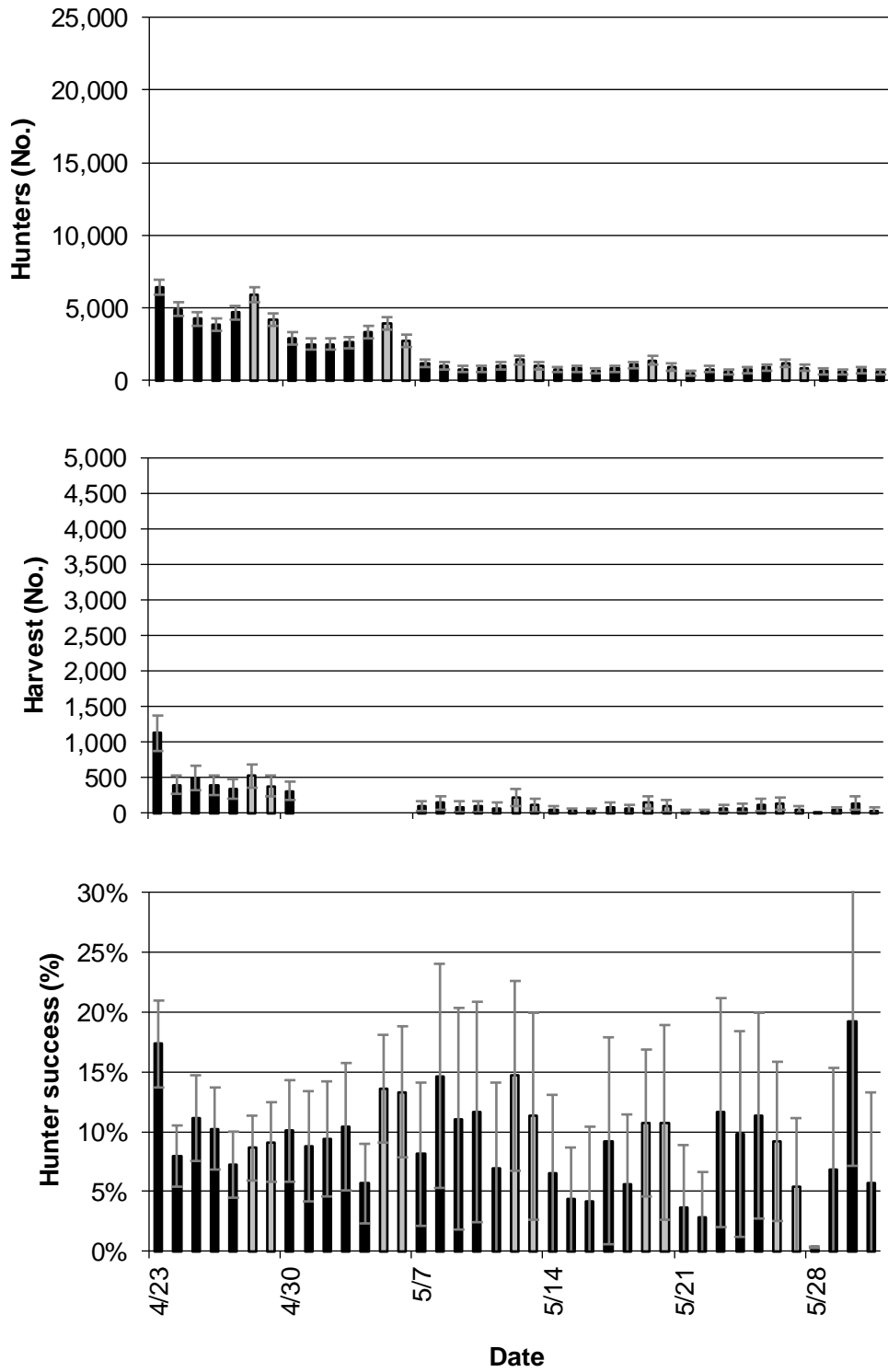
Figure 10. Estimated number of hunters, harvest, and hunter success by date during all hunts, except for mentored youth hunts and hunts 234 and 301 of the 2018 Michigan spring turkey hunting season. An additional 734 $\pm$ 220 birds were taken on unknown dates. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.
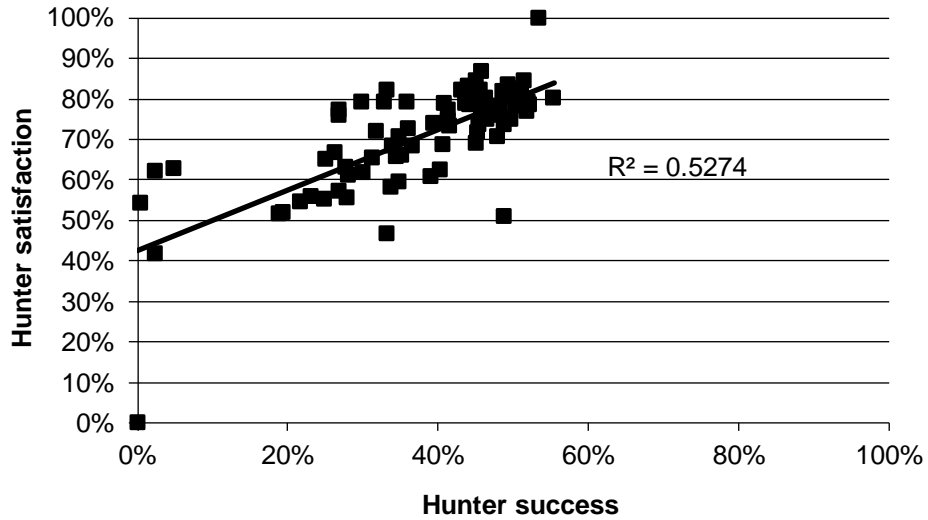
Figure 11. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter success for each of 81 counties in Michigan during the 2018 spring turkey hunting season (included only counties with at least 30 hunters).
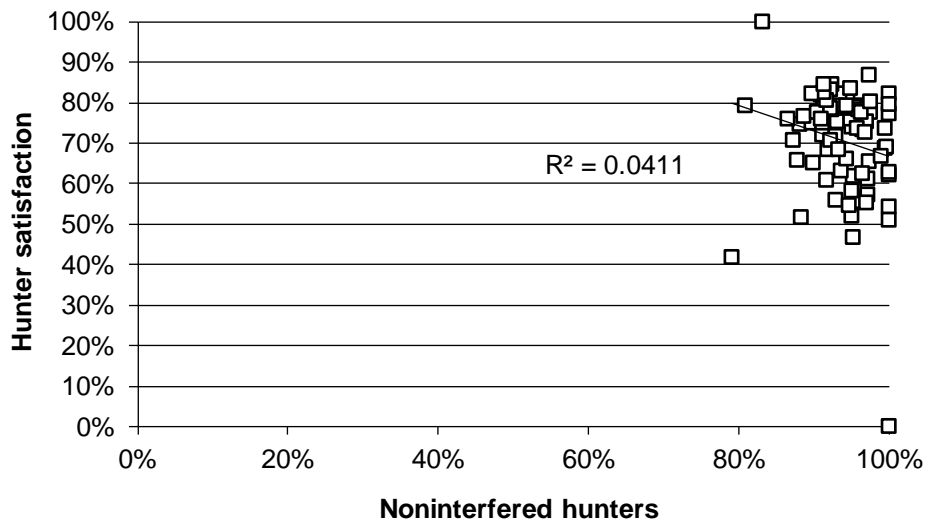

Figure 12. Relationship between hunter satisfaction (expressed as the percentage of hunters rating their hunting experience as excellent, very good, or good) and hunter interference for each of 81 counties in Michigan during the 2018 spring turkey hunting season (included only counties with at least 30 hunters). Noninterfered hunters were the proportion of hunters that indicated that they experienced no or only minor interference from other hunters.

APPENDIX A

Questionnaire used for the 2018 Spring Turkey Harvest Survey.

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

2018 MICHIGAN SPRING TURKEY HUNTER REPORT
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 hunt or harvest a turkey.*
> *If you did not hunt, please answer "No" to question 1 and return this report.*

1. **Did you hunt turkeys during the 2018 spring season?** 1 ☐ Yes   2 ☐ No; skip remaining questions.

2. **Did you hunt with a firearm, crossbow, or bow? (select all that apply)**

   1 ☐ Firearm   2 ☐ Crossbow   3 ☐ Bow (recurve, compound, or long bow)

3. **If you hunted, please complete the adjacent table:** *(If you hunted on both public and private lands in the same county or unit, report your activity on separate lines. If you hunted in Unit ZZ, please* report *the* subunit *you hunted.)*

County hunted (e.g., Kent County)	Unit hunted (see map on back)	Land ownership (please check one)	Number of days hunted
		1 ☐ Private 2 ☐ Public	
		1 ☐ Private 2 ☐ Public	
		1 ☐ Private 2 ☐ Public	

4. **Using the adjacent calendar, please circle [O] the days that you hunted. Circle only the days you actually went afield to hunt turkeys.**

April 2018								May 2018						
S	M	T	W	T	F	S		S	M	T	W	T	F	S
										1	2	3	4	5
								6	7	8	9	10	11	12
								13	14	15	16	17	18	19
		23	24	25	26	27	28	20	21	22	23	24	25	26
29	30							27	28	29	30	31		

5. **Did you harvest a turkey during the 2018 spring season?** Only count turkeys tagged with your kill tag.   1 ☐ Yes   2 ☐ No; skip to question 7.

6. **If you placed your harvest tag on a turkey, please mark [X] the date that the turkey was harvested.**

April 2018								May 2018						
S	M	T	W	T	F	S		S	M	T	W	T	F	S
										1	2	3	4	5
								6	7	8	9	10	11	12
								13	14	15	16	17	18	19
		23	24	25	26	27	28	20	21	22	23	24	25	26
29	30							27	28	29	30	31		

   A. In what county and unit was the turkey taken *(refer to map on backside)?*

   Please write in county name _____   Please write in hunting unit _____

   B. Which option best describes the bird that you tagged?
   1 ☐ Male with a beard less than 6 inches   2 ☐ Male with a beard 6 or more inches   3 ☐ Female with a beard

   C. What type of land was the turkey harvested?   1 ☐ Private   2 ☐ Public

   D. What type of device was used to harvest your turkey?

   1 ☐ Firearm   2 ☐ Crossbow   3 ☐ Bow (recurve, compound, or long bow)

7. **Overall, how would you rate your 2018 spring turkey hunting experience?**

   1 ☐ Excellent   2 ☐ Very Good   3 ☐ Good   4 ☐ Fair   5 ☐ Poor

8. **How would you describe interference by other hunters during your 2018 spring turkey hunt?**

   1 ☐ None   2 ☐ Minor   3 ☐ Some irritation   4 ☐ Major problem

9. **Compared to last year, what is the status of turkeys in the county you preferred to hunt in 2018?**

   1 ☐ Increasing   2 ☐ Decreasing   3 ☐ Stable   4 ☐ Unknown

Please return questionnaire in the enclosed postage-paid envelope.   PR-2122 (Rev. 04/03/2018)

2018 Spring Turkey Hunting Units

Isle Royale of Keweenaw County (shifted south from correct location)

Unit M is all of the Upper Penisula, except Isle Royale.

0 10 20 40 Miles

Keweenaw

Houghton

Ontonagon

Baraga

Gogebic

Marquette

Iron

M

Dickinson

Menominee

Alger

Luce

Schoolcraft

Mackinac

Chippewa

Delta

Beaver Island Group

B

Emmet

Cheboygan

Presque Isle

A

Charlevoix

J

Montmorency

Alpena

Fox Islands

Manitou Islands

Antrim

Otsego

Leelanau

Alcona

33

Benzie

Grand Traverse

Kalkaska

Crawford

Oscoda

72

Manistee

Missaukee

Roscommon

Ogemaw

F

Iosco

Wexford

Legend

Units Open to Hunting

Unit Boundaries

- - - County Boundary Line

Mason

K

Osceola

Clare

Gladwin

Arenac

Lake

Oceana

Mecosta

Isabella

Midland

Bay

Huron

ZB

Newaygo

Montcalm

Gratiot

Saginaw

Tuscola

Sanilac

Muskegon

ZA

Kent

Ionia

Clinton

Shiawasee

Genesee

Lapeer

St. Clair

ZC

Ottawa

Eaton

Ingham

Livingston

Oakland

Macomb

Allegan

Barry

ZF

Van Buren

Kalamazoo

Calhoun

ZE

Jackson

Washtenaw

Wayne

ZD

Cass

St. Joseph

Branch

Hillsdale

Lenawee

Monroe

Berrien

Please note if you hunted Turkey Management Unit ZZ. Turkey Management Unit ZZ consisted of 6 smaller management units (subunits) in southern Michigan. If you hunted in Unit ZZ, please report which of these smaller subunits you hunted (i.e., units ZA, ZB, ZC, ZD, ZE, ZF).