Oklahoma Department of Wildlife Conservation

Bowhunter Observation Survey

2017-Season

The Oklahoma Department of Wildlife Conservation (ODWC) sought participation from bowhunters for the second annual Bowhunter Observation Survey from October 1 to November 31, 2017. The main objectives of this survey were: 1) to provide statewide and regional population indices of furbearers (beaver, bobcat, coyote, otter, red and gray fox, raccoon, and other species as needed), and deer; 2) to develop a long-term database of selected furbearer and deer data for monitoring and evaluating an index of species observation; and 3) to provide an independent supplement to other deer data collected by the ODWC. Bowhunters are ideal for observational-type surveys because they typically spend a large amount of time in stands within the natural environment of many wildlife species.

Invitations to participate in the survey were promoted through ODWC's general e-mail list and social media to identify bowhunters that desired to participate (i.e. voluntary self-selection). Participating bowhunters received an e-mailed participant packet prior to archery season. Instructions on how to participate, a link to an electronic survey form and a printable copy of the survey form were included in the participant packet.

Participants were asked to record their observations while they were in the field during the first two months of Deer Archery Season. The survey period began on the first day of Deer Archery Season (October 1) and concluded November 31, 2017. Participants were able to record observations in any way they preferred—by using the printable survey form, a paper notepad, or an application on their cell phone (e.g. Notes). Regardless of the method chosen, participants were asked to keep in-field records to help minimize recall bias. Participating hunters could submit surveys via an electronic form, or they could record observations and submit surveys using a paper form. Surveys were accepted through December 15, 2017.

Observations were standardized for each of the species to reflect the number of observations per 1,000 hours hunted in each of the 77 counties and statewide. Population indices were calculated by zoogeographic (habitat) regions for furbearers. Year-to-year comparisons were made where appropriate.

The ODWC would like to thank all hunters who participated in the second annual Bowhunter Observation Survey. The amount of data collected by bowhunters could never be duplicated by our biologists, technicians, and game wardens. Participation in this survey plays a critical role in the conservation of these and other wildlife species for the future. We look forward to continuing this partnership with bowhunters each year.

When reviewing the information in the tables that follow, please note that there are many factors that could affect the observability of wildlife, such as population size, habitat, topography, and land use. In some cases, wildlife observations are based off a limited number of observation hours, and/or from a limited number of hunters.

For questions or comments, please contact Jerrod Davis, Furbearer Biologist: jerrod.davis@odwc.ok.gov

Hunter Participation

A small number of hunters continue to add their name to the list of survey participants throughout the year. Despite having 2,185 hunters in the participant pool, only 476 submitted a survey form during the 2017 archery season, resulting in a 22% participation rate for the project. Participating hunters submitted a total of 2,566 survey forms, accounting for 10,595 hours of wildlife observation. Hunters averaged 4.13 hours of wildlife observation per survey submission (Table 1). Bowhunter observation surveys were conducted throughout the two-month survey period, with the number of surveys tapering off from the beginning to the end of the season. Peaks in completion of observation surveys can be seen on weekends (Figure 1).

Table 1. Summary statistics for statewide hunter participation in the 2017-season Bowhunter Observation Survey.

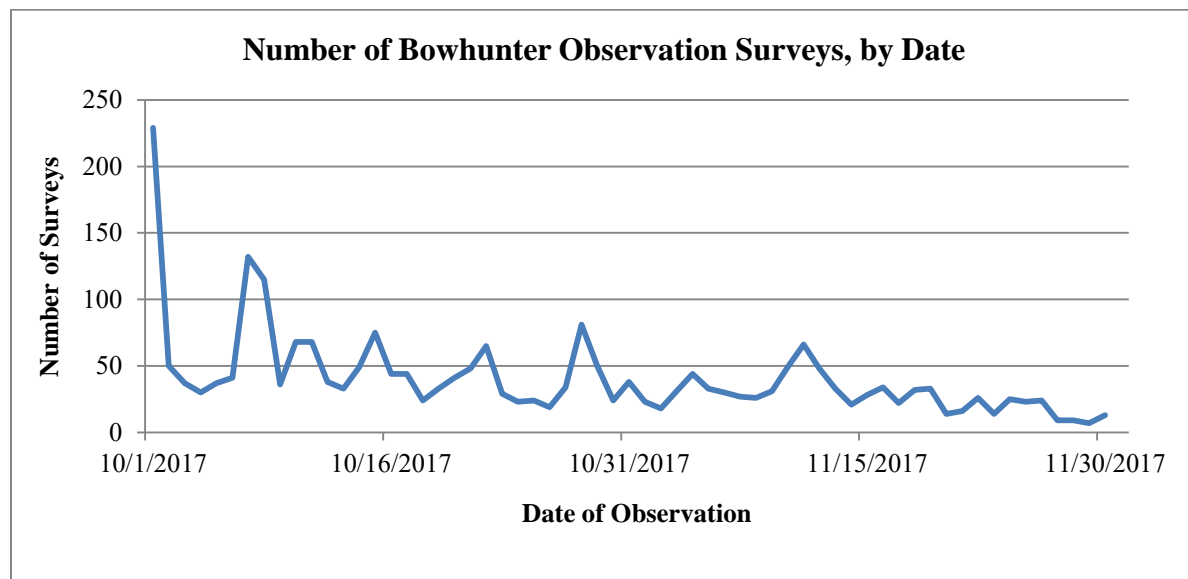|	
Hunters Signed-up	2,185
Hunters Submitting Observations	476 (22% participation rate)
Total Surveys Submitted	2,566
Average Surveys Submitted per Hunter	5.4
Average Observation Hours per submission	4.13
Total Hours of Observation	10,595

Figure 1. The number of bowhunter observations surveys conducted during the 2017-season, by date.

Table 2. Descriptive statistics for hunter participation in the 2017-season Bowhunter Observation Survey, by county.

County	Total Hours	Average Hours/Submission	Total Submissions
Adair	61	3.59	17
Alfalfa	58	3.22	18
Atoka	610	4.66	131
Beaver	30	7.50	4
Beckham	110	3.44	32
Blaine	55	5.00	11
Bryan	186	4.23	44
Caddo	228	3.80	60
Canadian	22	3.14	7
Carter	121	5.04	24
Cherokee	390	4.94	79
Choctaw	27	3.00	9
Cimarron	40	10.00	4
Cleveland	332	4.96	67
Coal	18	4.50	4
Comanche	181	5.03	36
Cotton	34	3.78	9
Craig	243	4.05	60
Creek	517	3.72	139
Custer	113	4.71	24
Delaware	268	4.25	63
Dewey	38	4.75	8
Ellis	61	2.90	21
Garfield	37	2.85	13
Garvin	190	3.45	55
Grady	118	4.07	29
Grant	246	3.32	74
Greer	84	3.65	23
Harmon	160	3.56	45
Harper	9	4.50	2
Haskell	3	3.00	1
Hughes	135	4.66	29
Jackson	33	3.30	10
Jefferson	38	4.22	9
Johnston	278	3.76	74
Kay	140	3.68	38
Kingfisher	68	2.96	23
Kiowa	79	4.39	18
Latimer	46	5.11	9
LeFlore	66	5.08	13
Lincoln	284	4.66	61
Logan	340	4.20	81
Love	71	3.94	18
Major	42	4.67	9
Marshall	21	4.20	5
Mayes	241	3.95	61
McClain	177	5.53	32
McCurtain	261	3.73	70

Table 2 Continued.

County	Total Hours	Average Hours/Submission	Total Submissions
McIntosh	46	5.11	9
Murray	26	3.71	7
Muskogee	104	3.59	29
Noble	66	2.87	23
Nowata	53	3.31	16
Okfuskee	110	4.78	23
Oklahoma	169	3.45	49
Okmulgee	240	7.50	32
Osage	506	4.29	118
Ottawa	160	4.10	39
Pawnee	207	3.98	52
Payne	175	3.50	50
Pittsburg	201	4.57	44
Pontotoc	165	3.84	43
Pottawatomie	197	4.10	48
Pushmataha	35	4.38	8
Roger Mills	17	4.25	4
Rogers	212	4.16	51
Seminole	119	4.41	27
Sequoyah	173	4.81	36
Stephens	120	3.00	40
Texas	106	4.61	23
Tillman	16	2.67	6
Tulsa	51	3.19	16
Wagoner	193	3.45	56
Washington	67	4.47	15
Washita	3	1.50	2
Woods	12	3.00	4
Woodward	136	5.91	23

White-tailed Deer

Table 3. Standardized white-tailed deer observations from the 2017-season Bowhunter Observation Survey, statewide and by land type.

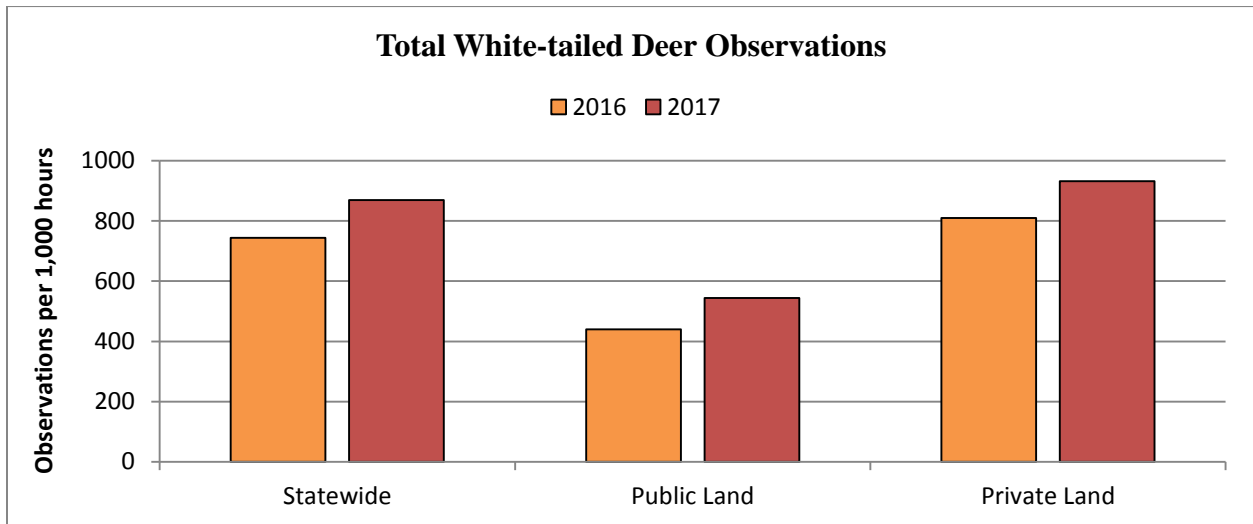|	Statewide	Public Land	Private Land
	Observations per 1,000 Hours		
Total deer	869	544	932
Bucks	243	124	266
Does	381	265	403
Fawns	189	103	206
Unknown	56	53	56

Figure 2. Comparison of standardized white-tailed deer observations from the 2016 and 2017-seasons Bowhunter Observation Survey, statewide and by land type.

Table 4. Standardized white-tailed deer observations from the 2017-season Bowhunter Observation Survey, by county.

	Bucks	Does	Fawns	Unknown	Total Deer
County	Observations per 1,000 hours				
Adair	279	557	295	49	1,180
Alfalfa	414	879	172	17	1,483
Atoka	166	352	90	41	649
Beaver	400	633	67	67	1,167
Beckham	673	391	400	27	1,491
Blaine	182	600	109	73	964
Bryan	290	505	296	113	1,204
Caddo	311	447	175	48	982
Canadian	591	727	455	45	1,818
Carter	149	240	66	8	463
Cherokee	267	469	292	67	1,095
Choctaw	74	444	259	74	852
Cimarron	25	50	0	0	75
Cleveland	87	190	93	27	398
Coal	278	500	389	111	1,278
Comanche	127	376	116	160	779
Cotton	206	176	265	118	765
Craig	313	527	321	58	1,218
Creek	132	172	56	23	383
Custer	345	478	142	18	982
Delaware	313	522	362	172	1,369
Dewey	184	447	211	0	842
Ellis	410	574	262	33	1,279
Garfield	378	378	81	216	1054
Garvin	242	374	216	32	863
Grady	390	729	195	93	1,407
Grant	622	813	382	122	1,939
Greer	214	214	167	48	643
Harmon	375	638	256	263	1,531
Harper	667	0	444	0	1,111
Haskell	333	667	0	0	1,000
Hughes	207	400	230	0	837
Jackson	667	1,273	1,242	30	3,212
Jefferson	342	316	316	132	1,105
Johnston	360	525	133	54	1,072
Kay	321	593	343	107	1,364
Kingfisher	426	794	235	15	1,471
Kiowa	392	494	291	0	1,177
Latimer	413	109	43	87	652
LeFlore	0	121	167	0	288
Lincoln	151	282	134	18	585
Logan	232	218	156	15	621
Love	239	366	141	28	775
Major	738	881	262	0	1,881
Marshall	333	524	238	0	1,095
Mayes	249	270	79	33	631
McClain	102	237	181	51	571

Table 4 Continued.

County	Bucks	Does	Fawns	Unknown	Total Deer
	Observations per 1,000 hours				
McCurtain	207	249	192	31	678
McIntosh	0	43	0	0	43
Murray	38	385	77	0	500
Muskogee	144	163	115	48	471
Noble	303	561	424	121	1,409
Nowata	472	604	642	113	1,830
Okfuskee	136	355	227	64	782
Oklahoma	260	402	183	30	876
Okmulgee	113	271	38	33	454
Osage	243	204	77	20	543
Ottawa	125	175	69	31	400
Pawnee	343	396	329	140	1,208
Payne	251	360	206	80	897
Pittsburg	139	308	124	65	637
Pontotoc	164	345	85	42	636
Pottawatomie	188	391	299	41	919
Pushmataha	57	743	343	0	1,143
Roger Mills	235	1,235	294	0	1,765
Rogers	259	344	175	52	830
Seminole	143	185	109	0	437
Sequoyah	168	434	145	69	815
Stephens	500	675	383	183	1,742
Texas	415	481	472	66	1,434
Tillman	188	375	438	0	1,000
Tulsa	20	196	118	118	451
Wagoner	119	420	249	26	813
Washington	239	448	194	0	881
Washita	1,333	333	1,000	0	2,667
Woods	667	917	167	0	1,750
Woodward	74	213	51	22	360

Furbearers

Table 5. Standardized furbearer observations from the 2017-season Bowhunter Observation Survey, statewide and by land type.

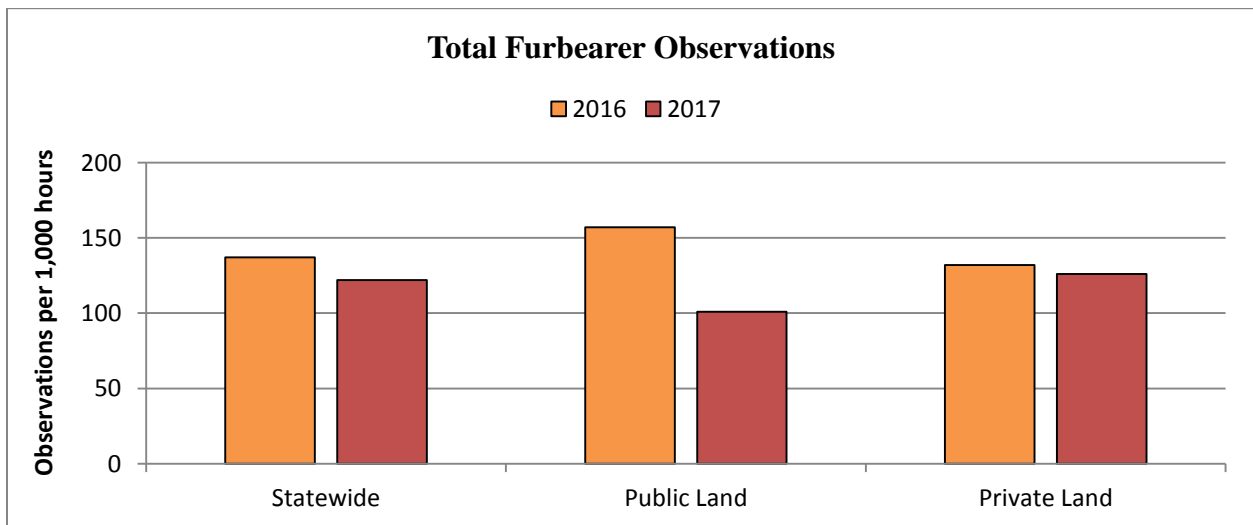|	Statewide	Public Land	Private Land
Species	**Observations per 1,000 Hours**		
Total Furbearers	122	101	126
Red Fox	5	7	4
Opossum	14	11	14
Badger	<1	0	<1
River Otter	<1	0	<1
Striped Skunk	5	2	6
Bobcat	12	8	13
Raccoon	41	35	42
Gray Fox	6	10	5
Coyote	39	27	41

Figure 3. Comparison of standardized furbearer observations from the 2016 and 2017-seasons Bowhunter Observation Survey, statewide and by land type.
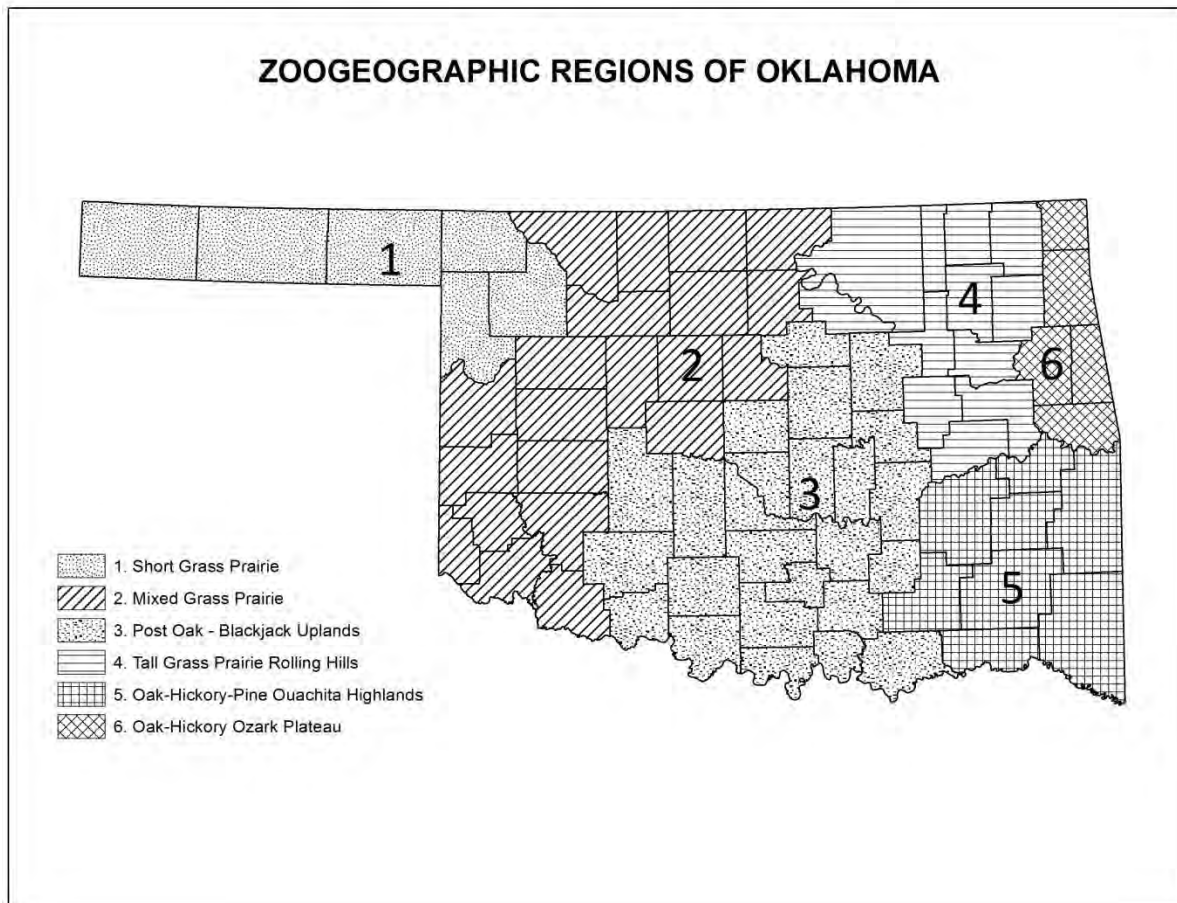
ZOOGEOGRAPHIC REGIONS OF OKLAHOMA

1. Short Grass Prairie
2. Mixed Grass Prairie
3. Post Oak - Blackjack Uplands
4. Tall Grass Prairie Rolling Hills
5. Oak-Hickory-Pine Ouachita Highlands
6. Oak-Hickory Ozark Plateau

Figure 4. Map of the zoogeographic regions of Oklahoma.

Table 6. Standardized furbearer observations from the 2017-season Bowhunter Observation Survey, by zoogeographic regions.

Zoogeographic Region*	Red Fox	Opossum	Badger	River Otter	Striped Skunk	Bobcat	Raccoon	Gray Fox	Coyote	Total Obs.
	Observations per 1,000 Hours									
1	0	3	0	0	0	13	34	0	107	157
2	0	16	1	0	10	22	62	0	75	186
3	6	18	0	0	7	10	44	9	30	124
4	10	15	0	2	1	10	39	7	32	115
5	0	3	0	1	5	10	26	3	18	66
6	5	7	0	0	0	11	21	9	23	75

*Zoogeographic Regions: 1- Short Grass Prairie; 2 - Mixed Grass Prairie; 3 - Post Oak - Blackjack Uplands; 4 - Tall Grass Prairie Rolling Hills; 5 - Oak-Hickory-Pine Ouachita Highlands; 6 - Oak-Hickory Ozark Plateau

Table 7. Standardized furbearer observations from the 2017-season Bowhunter Observation Survey, by county.

County	Red Fox	Opossum	Badger	River Otter	Striped Skunk	Bobcat	Raccoon	Gray Fox	Coyote	Total Obs.
					Observations per 1,000 Hours					
Adair	0	0	0	0	0	0	16	0	16	33
Alfalfa	0	17	0	0	0	17	172	0	103	310
Atoka	0	2	0	0	2	3	20	0	8	34
Beaver	0	0	0	0	0	0	100	0	133	233
Beckham	0	9	0	0	27	0	0	0	64	100
Blaine	0	91	0	0	0	18	91	0	73	273
Bryan	0	16	0	0	0	5	59	0	22	102
Caddo	44	0	0	0	0	9	35	44	44	175
Canadian	0	0	0	0	0	45	273	0	136	455
Carter	0	0	0	0	8	25	50	0	91	174
Cherokee	5	0	0	0	0	3	3	5	10	26
Choctaw	0	0	0	0	0	37	0	37	0	74
Cimarron	0	0	0	0	0	0	0	0	50	50
Cleveland	18	9	0	0	6	3	57	30	9	133
Coal	0	0	0	0	0	0	0	0	56	56
Comanche	0	17	0	0	11	22	0	0	61	110
Cotton	0	0	0	0	59	0	0	0	147	206
Craig	0	21	0	12	0	12	62	0	49	156
Creek	2	29	0	0	6	10	27	0	27	101
Custer	0	9	0	0	0	18	18	0	27	71
Delaware	7	15	0	0	0	15	22	26	22	108
Dewey	0	0	0	0	0	26	79	0	0	105
Ellis	0	0	0	0	0	33	16	0	33	82
Garfield	0	0	0	0	0	27	0	0	108	135
Garvin	26	5	0	0	5	21	79	0	21	158
Grady	0	8	0	0	34	25	17	0	34	119
Grant	0	37	8	0	16	24	98	0	41	224
Greer	0	0	0	0	12	0	0	0	0	12
Harmon	0	0	0	0	0	19	25	0	69	113
Harper	0	0	0	0	0	222	0	0	0	222
Haskell	0	0	0	0	0	0	0	0	0	0
Hughes	0	44	0	0	0	0	59	0	15	119
Jackson	0	0	0	0	30	0	61	0	182	273
Jefferson	0	0	0	0	0	26	0	0	0	26
Johnston	0	7	0	0	0	7	40	0	7	61
Kay	0	21	0	0	14	50	164	0	214	464
Kingfisher	0	44	0	0	15	0	74	0	118	250
Kiowa	0	25	0	0	13	51	89	0	127	304
Latimer	0	0	0	0	43	22	22	0	0	87
LeFlore	0	30	0	0	30	15	30	0	30	136
Lincoln	4	21	0	0	7	11	85	32	28	187
Logan	0	3	0	0	9	9	35	0	35	91

Table 7 Continued.

County	Red Fox	Opossum	Badger	River Otter	Striped Skunk	Bobcat	Raccoon	Gray Fox	Coyote	Total Obs.
				Observations per 1,000 Hours						
Love	0	14	0	0	0	0	14	0	0	28
Major	0	0	0	0	0	71	0	0	167	238
Marshall	0	0	0	0	0	0	0	0	0	0
Mayes	8	8	0	4	4	4	25	0	8	62
McClain	0	23	0	0	23	0	34	0	28	107
McCurtain	0	4	0	0	0	8	46	8	42	107
McIntosh	0	0	0	0	0	0	0	0	0	0
Murray	0	38	0	0	0	0	38	0	0	77
Muskogee	0	19	0	0	0	0	0	0	0	19
Noble	0	15	0	0	15	45	76	0	106	258
Nowata	0	0	0	0	0	0	0	0	0	0
Okfuskee	0	9	0	0	18	9	82	0	0	118
Oklahoma	12	47	0	0	6	6	107	12	101	290
Okmulgee	4	8	0	0	0	21	4	8	25	71
Osage	8	6	0	0	0	8	47	4	34	107
Ottawa	0	13	0	0	0	13	69	0	25	119
Pawnee	0	58	0	0	5	10	34	0	63	169
Payne	0	51	0	0	17	17	17	6	74	183
Pittsburg	0	0	0	5	5	20	30	5	25	90
Pontotoc	0	0	0	0	12	12	0	0	6	30
Pottawatomie	0	30	0	0	0	5	61	5	10	112
Pushmataha	0	0	0	0	0	29	0	0	0	29
Roger Mills	0	0	0	0	59	0	0	0	176	235
Rogers	32	24	0	0	0	8	48	4	40	157
Seminole	0	17	0	0	0	17	42	17	34	126
Sequoyah	6	6	0	0	0	29	17	0	52	110
Stephens	0	8	0	0	0	8	17	0	8	42
Texas	0	0	0	0	0	9	47	0	255	311
Tillman	0	0	0	0	0	125	0	0	0	125
Tulsa	59	0	0	0	20	20	176	78	20	373
Wagoner	5	0	0	0	0	10	41	0	21	78
Washington	30	30	0	0	0	15	45	104	75	299
Washita	0	0	0	0	0	0	0	0	0	0
Woods	0	0	0	0	0	0	0	0	0	0
Woodward	0	7	0	0	0	0	29	0	44	81

Other Species

In addition to the species listed in Table 8, bowhunters reported observations for several additional species that were not listed on the form. These include a variety of bird species, mountain lions, pronghorns, chipmunks, rabbits, armadillos, snakes, prairie dogs, beavers, bats, and porcupines.

Table 8. Standardized wildlife observations from the 2017-season Bowhunter Observation Survey, statewide and by land type.

	Statewide	Public Land	Private Land
	Observations per 1,000 Hours		
Black Bear (adult)	2	2	2
Black Bear (cub)	2	2	1
Elk (antlered)	6	11	5
Elk (antlerless)	8	12	7
Elk (calf)	6	9	5
Turkey (bearded)	40	33	42
Turkey (not bearded)	42	34	43
Turkey (unknown)	20	31	18
Gray Squirrel	178	225	169
Fox Squirrel	233	192	241
Quail	64	77	61
Feral Swine	41	34	42
House Cat	3	2	3
Domestic Dog	13	10	14