

Tennessee Bobwhite Harvest 2007-08 Seasons

This report replaces the standard technical report previously published by TWRA to provide a more simplified update of annually collected statistics. Besides changes in report content and format, there were also changes in the methods used to obtain hunter harvest and effort statistics. First of all, we implemented the pilot year of a mixed-mode harvest survey which can be used to calculate estimates of annual harvest of all small game species that are the responsibility of the small game program. Secondly, we discontinued the collection of field bag check statistics for all small game species. For a number of years, as the time constraints for wildlife officers have shifted more toward big game enforcement needs and other necessary activities, the numbers of bag checks for small game have declined so low that valid statistics can no longer be provided. The Avid Hunter survey was continued and provides the only long term data we have on small game hunting activity.

Wildlife Populations 101: populations of most animals, especially the small game species, fluctuate annually. That is to say that in managing for these species, it is expected that numbers will change each year. Past reliance on reporting only the usual annual fluctuation in populations does not inform management programs and does not really help in determining the best places to hunt during the next season as populations that were high one year in a particular locale could have crashed before the next hunting season opens. The most instructive information from harvest data are trends, that is, the accumulation of annual statistics over time.

These accumulations of statistics are called time series because time is one of the important components of the data. In our case the time variable is year, representing the opening year of the hunting season. The hunting season being reported here is considered the 2007 season since it opened in calendar year 2007 but closed in calendar year 2008. A time series of data is analyzed using several statistical methods including one called regression. The regression method generates a trend line through multiple years of data, and the slope of this trend line on a graph is a measure of the amount of increase or decline in the set of data. This slope provides an estimate of the percent change in a population per year over the span of the data series. Thus a slope of -1 is a decline of one percent per year over the span of years of the data; likewise, a slope of +1 would represent an increase of 1 percent per year over the period of time. A 0 slope means that there is no change; the variable is stable. Another piece of information that is provided from a regression analysis is an estimate of the correlation between year and the statistic being examined. This correlation coefficient provides a measure of the strength of the relationship; the closer this value is to 1 the stronger the relationship. Finally, the analysis provides another piece of information in the form of a confidence interval. This is indicated on graphs as a pair of lines that parallel the trend line. It represents the area on the graph that contains 95% of the data on the graph. The best trend is one in which all of the data on the graph are close to the trend line and the confidence interval is also very close to the trend line. This is the case with many of our statistics but certainly not all.

All of these points need to be remembered to interpret the meaning of graphs presented below. Some of the “traditional” tables which provide statistics from the Avid Hunter survey will also be provided at the end of the report for those having interest in them. Bear in mind that, as noted above, locations that had good hunting in the 2007 seasons are not necessarily going to have good hunting in 2008.

Bobwhite

No one questions that bobwhites are on a long term downward trend in Tennessee and throughout their range in the United States. The Breeding Bird Survey, conducted annually by volunteers assisting the U. S. Geological Survey, shows a downward trend averaging 4% each year over the period 1966-2007 (Figure 1). This means that each year the population has decreased by 4% (a loss of 4 birds out of every 100). Another nation-wide survey conducted by volunteers is the Christmas Bird Count. This survey is conducted in late December and early January each year and also shows declines in bobwhites in Tennessee (Figure 2).

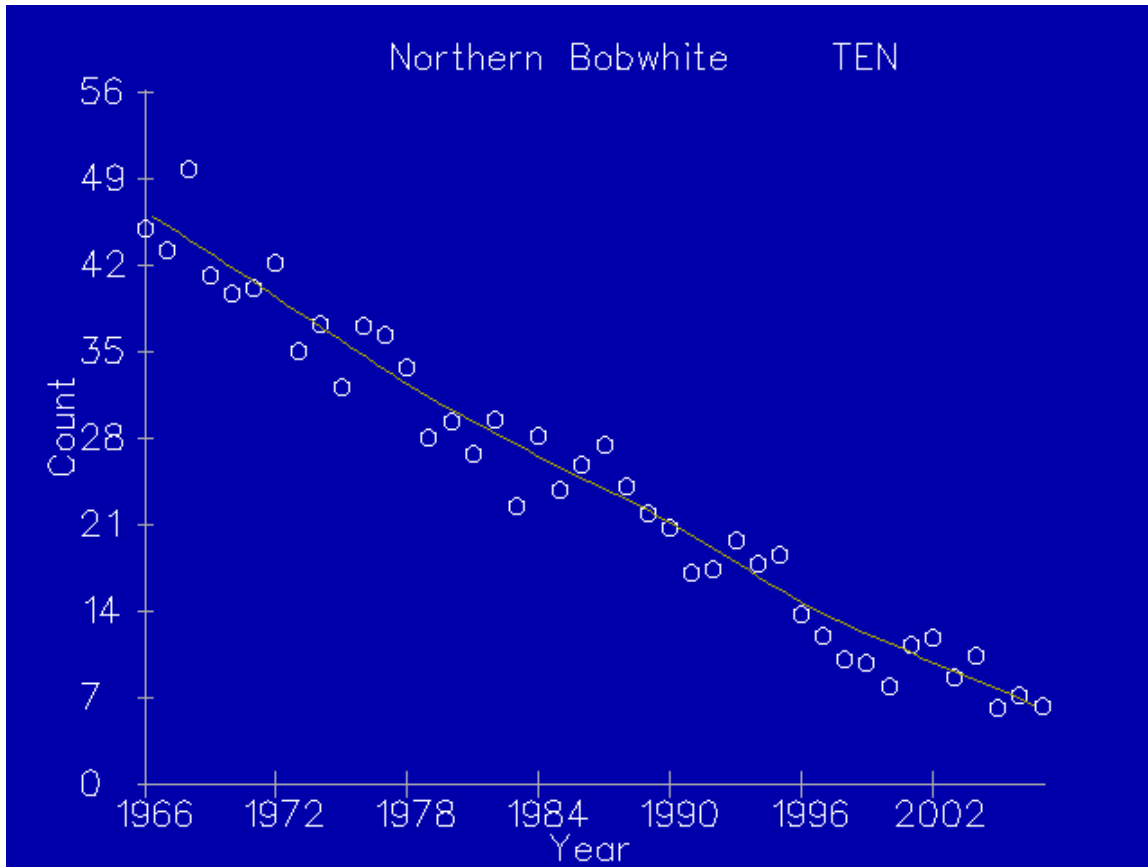


Figure 1. Bobwhite population trend from Breeding Bird Survey 1966-2007.

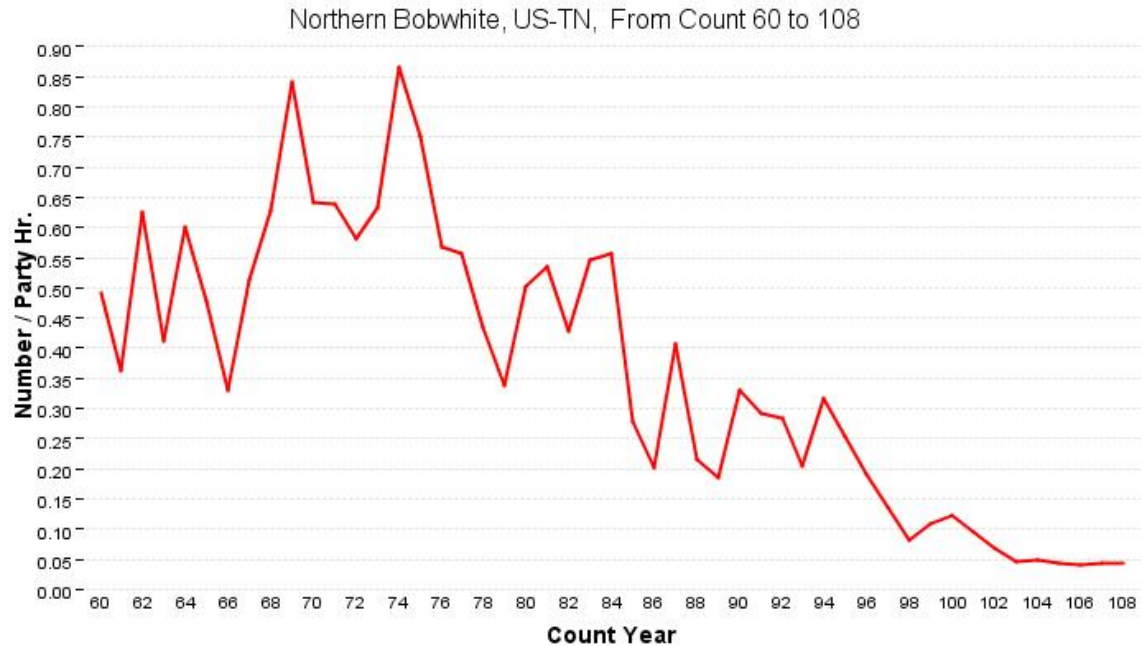


Figure 2. Bobwhite population trend from Christmas Bird Counts 1960-2008.

While both of these surveys provide useful data, there is insufficient coverage of Breeding Bird Survey routes and Christmas Bird Count circles to adequately inform distribution and abundance of bobwhite throughout the state. A survey that provides abundance of bobwhites as estimates of population density is a critical need in order for bobwhite restoration to proceed.

Harvest trends presently represented by our Avid Hunter surveys, do not provide estimates of populations or estimates of harvest. The primary use of this data is to provide a trend for flushing rate among a volunteer group of Tennessee quail hunters. Flush rate has also declined (Figure 3), but does so as a reflection of a decrease in quail hunter number, hunting effort, and hunter cooperator reporting rates, as well as bobwhite populations. Additional data from the 2007-08 seasons from the Avid Hunter survey is provided in the Appendix at the end of this report. Results from the pilot of the mixed mode survey are also presented in the Appendix.

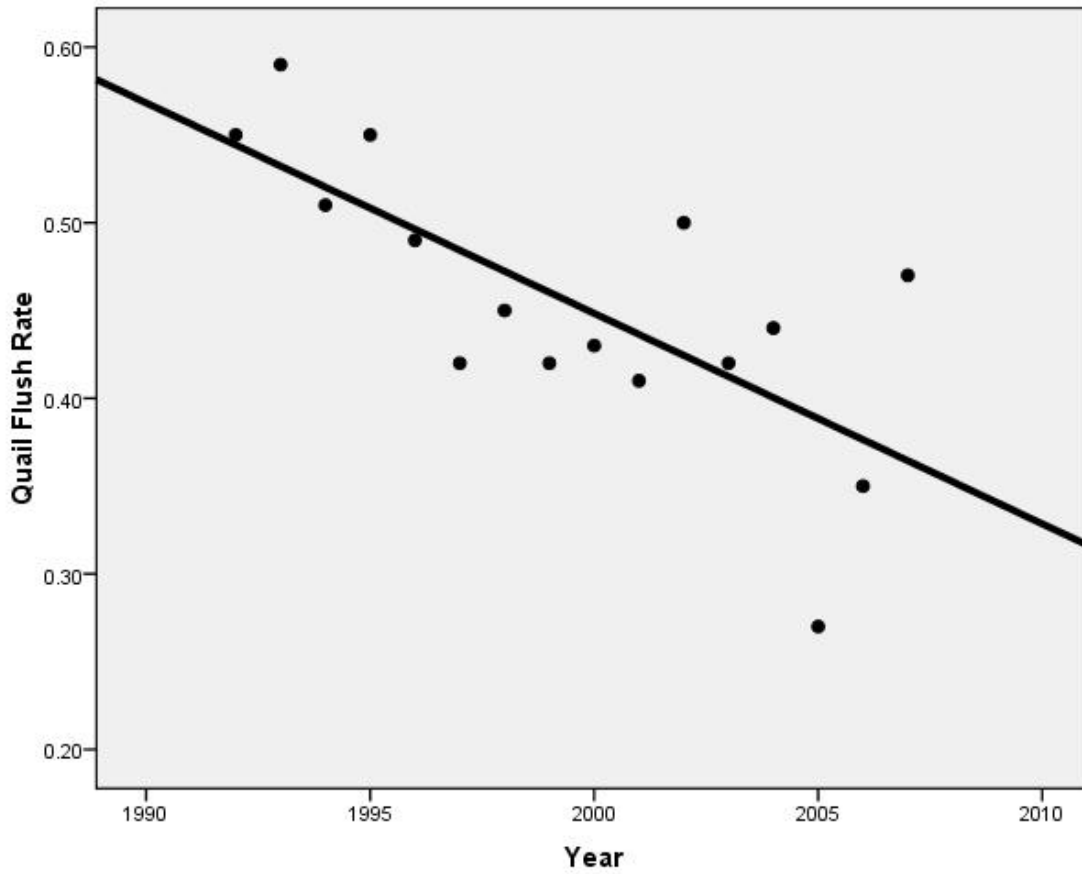


Figure 3. Trend in flush rate of bobwhites from Avid Hunter cooperators 1992-2007.

The Tables below are summaries of information obtained in the Avid Hunter survey and provide information traditionally provided in past TWRA small game reports. These tables are here for the benefit of those that desire to see them. In the future these may be eliminated.

DISTRIBUTION OF QUAIL HUNTS AND HARVEST THROUGH THE 2007-2008 SEASON

Week Beginning	HUNTING EFFORT			QUAIL		
	No. of Trips	Percent of Total Trips	Cumulative No. of Trips	Percent Cumulative	Percent of Total Harvest	Cumulative Percent
10NOV07	76	10.86	76	10.86	8.65	8.65
17NOV07	30	4.29	106	15.14	5.57	14.21
24NOV07	40	5.71	146	20.86	5.86	20.08
01DEC07	47	6.71	193	27.57	8.75	28.83
08DEC07	35	5.00	228	32.57	8.05	36.88
15DEC07	42	6.00	270	38.57	4.97	41.85
22DEC07	44	6.29	314	44.86	5.27	47.12
29DEC07	35	5.00	349	49.86	4.87	51.99
05JAN08	47	6.71	396	56.57	11.13	63.12
12JAN08	54	7.71	450	64.29	6.26	69.38
19JAN08	46	6.57	496	70.86	8.05	77.44
26JAN08	39	5.57	535	76.43	3.48	80.91
02FEB08	35	5.00	570	81.43	3.38	84.29
09FEB08	37	5.29	607	86.71	2.39	86.68
16FEB08	40	5.71	647	92.43	7.06	93.74
23FEB08	53	7.57	700	100.00	6.26	100.00

QUAIL HARVEST DATA BY PUBLIC AREA (2007-2008)

Wildlife Management Area or Public Hunting Area	Per of Trips	No. of Hunters	No. Coveys Flushed	No. Quail Per Covey	Avg. No. Quail Bagged	Total Hours Hunted	Covey	Covey	Harvest Per Party	Harvest Per Party	Harvest Per Hunter Day
							Flashes Party	Flashes Party			
AEDC WMA	2	3	0	0.0	0	5.50	0.00	0.00	0.00	0.00	0.00
Bark Camp Barrens	1	3	1	8.0	1	2.50	0.40	0.40	1.00	1.00	0.33
Bowater PHA - Plateau	4	8	1	8.0	0	13.00	0.08	0.00	0.25	0.00	0.00
Catoosa WMA	3	4	0	0.0	0	9.50	0.00	0.00	0.00	0.00	0.00
Cherokee WMA - North	2	4	1	7.0	2	9.00	0.11	0.22	0.50	1.00	0.50
Fall Creek Falls WMA	11	25	8	11.8	10	18.00	0.44	0.56	0.73	0.91	0.40
Fort Campbell	14	32	26	9.3	21	58.00	0.45	0.36	1.86	1.50	0.66
Laurel Hill WMA	4	5	3	9.3	2	17.50	0.17	0.11	0.75	0.50	0.40
Misc. Public Lands - West	0.00	2	6	0	0.0	0	3.00	0.00	0.00	0.00	0.00
Old Hickory WMA	8	13	1	8.0	4	27.00	0.04	0.15	0.13	0.50	0.31
Percy Priest WMA	36	56	15	9.3	15	141.50	0.11	0.11	0.42	0.42	0.27
TVA Reservoir Land	1	1	0	0.0	0	4.00	0.00	0.00	0.00	0.00	0.00
Wolf River WMA	5	7	3	6.3	2	12.00	0.25	0.17	0.60	0.40	0.29
Yanahli WMA	13	14	4	6.8	5	43.75	0.09	0.11	0.31	0.38	0.36
	106	181	63	9.2	62	364.25	0.17	0.17	0.59	0.58	0.34

QUAIL HARVEST DATA BY SMALL GAME REGION (2007-2008)

Small Game Region	Harvest No. of Trips	Flushes No. of Hunters	Harvest No. of Coveys Flushed	Harvest Avg. No. Quail Per Covey	Quail Bagged	Covey Total Flushes	
						Party Hours Hunted	Per Party Hour
WEST	241	470	298	9.8	394	756.75	0.39
MIDDLE	316	543	316	11.1	485	1098.25	0.29
PLATEAU	80	151	52	10.6	55	209.50	0.25
EAST	63	105	36	12.2	72	185.50	0.19
	700	1269	702	10.6	1006	2250.00	0.31

QUAIL HARVEST DATA BY SMALL GAME REGION (CONTINUED)

Small Game Region	Avg. Hours Per Trip	% of Trips where Avg. Harvest Per Hunter > 5
WEST	3.1	0.00
MIDDLE	3.5	0.63
PLATEAU	2.6	0.00
EAST	2.9	3.17
	3.2	

QUAIL HARVEST DATA BY ZONE (2007-2008)

Regional Unit	Covey				Harvest Per Quail Bagged	Covey	
	Flushes No. of Party Trips	Harvest No. of Party Hunters	Flushes No. of Party Flushed	Harvest Avg. No. Quail Hunter Covey		Total Party Hours Hunted	Per Party Hour
NORTH-WEST	109	238	163	10.0	209	362.00	0.45
NORTH-MIDDLE	208	388	208	10.6	309	744.75	0.28
NORTH-PLATEAU	25	33	9	9.2	10	91.50	0.10
NORTH-EAST	35	48	5	10.2	7	81.00	0.06
SOUTH-WEST	132	232	135	9.6	185	394.75	0.34
SOUTH-MIDDLE	108	155	108	12.1	176	353.50	0.31
SOUTH-PLATEAU	55	118	43	10.9	45	118.00	0.36
SOUTH-EAST	28	57	31	12.5	65	104.50	0.30
	700	1269	702	10.6	1006	2250.00	0.31

QUAIL HARVEST DATA BY ZONE (CONTINUED)

Regional Unit	Avg. Hours Per Trip	% of Trips where Avg. Harvest Per Hunter > 5
NORTH-WEST	3.3	0.00
NORTH-MIDDLE	3.6	0.00
NORTH-PLATEAU	3.7	0.00
NORTH-EAST	2.3	0.00
SOUTH-WEST	3.0	0.00
SOUTH-MIDDLE	3.3	1.85
SOUTH-PLATEAU	2.1	0.00
SOUTH-EAST	3.7	7.14
	3.2	

QUAIL HARVEST DATA BY MONTH (2007-2008)

MONTH	Flushes	Harvest	Flushes	Harvest	Harvest	Total	
	No. of Party Trips	No. of Party Hunters	No. Coveys Party Flushed	Avg. No. Quail Per Hunter Covey	Per Quail Bagged	Party Hours Hunted	Per Party Hour
NOVEMBER	146	258	140	10.9	202	436.50	0.32
DECEMBER	186	339	200	10.8	305	605.25	0.33
JANUARY	200	363	205	10.6	305	653.50	0.31
FEBRUARY	168	309	157	10.0	194	554.75	0.28
	700	1269	702	10.6	1006	2250.00	0.31

QUAIL HARVEST DATA, COMPARISON OF PRIVATE LAND VS. PUBLIC LANDS

Private or Public	Harvest	Flushes	Harvest	Harvest	Quail Bagged	Covey Total Flushes	
	No. of Trips	No. of Hunters	No. Coveys Flushed	Avg. No. Quail Per Covey		Party Hours Hunted	Per Party Hour
PRIVATE	594	1088	639	10.7	944	1885.75	0.34
PUBLIC	106	181	63	9.2	62	364.25	0.17
	700	1269	702	10.6	1006	2250.00	0.31

QUAIL HUNTER SURVEY

1992 - 2007

YEAR	Harvest No. of Trips	Flushes No. of Hunters	Harvest No. Coveys Flushed	Harvest Quail Bagged	Covey Total Flushes		
					Party Hours Hunted	Per Party Hour	Per Party Hour
1992-93	886	1713	2103	4007	3857.50	0.55	1.04
1993-94	1226	2429	2667	5072	4488.70	0.59	1.13
1994-95	2198	4297	4025	7959	7913.00	0.51	1.01
1995-96	2096	4048	4138	7504	7545.00	0.55	0.99
1996-97	2383	4533	4151	8071	8406.00	0.49	0.96
1997-98	2381	4515	3569	6089	8414.50	0.42	0.72
1998-99	1928	3532	2771	4602	6204.75	0.45	0.74
1999-00	2200	3935	2945	4743	7034.75	0.42	0.67
2000-01	1647	3088	2281	3893	5316.00	0.43	0.73
2001-02	1597	3037	2184	3708	5309.75	0.41	0.70
2002-03	1587	2990	2495	3919	4999.50	0.50	0.78
2003-04	1443	2776	1987	2915	4676.50	0.42	0.62
2004-05	1239	2281	1760	2736	3968.50	0.44	0.69
2005-06	1031	1829	855	1249	3196.25	0.27	0.39
2006-07	768	1331	831	1383	2366.25	0.35	0.58
2007-08	700	1269	702	1006	2250.00	0.31	0.45
Total/Avg.	25557	48133	40435	70448	86824.70	0.47	0.81