

State: Georgia  
Grant Number: 8-1  
Study Number: 6

## LONG RANGE PERFORMANCE REPORT

Grant Title: State Funded Wildlife Survey

Period Covered: July 1, 1999 - June 30, 2000

Study Title: Wild Turkey Production and Population Indices

Study Objectives:

1. To determine annually an index of statewide turkey populations and production success in Georgia.
2. To organize data obtained in a form so that it can be used in sound management of turkeys in Georgia.

### Abstract

The statewide production index, poult seen per observer, for 1999 (17.7) was 20 % lower than the 1998 index (22.1). In addition, the population index, hours hunted by cooperators per turkey seen, for 2000 was 21.4 % higher than in 1999. An inverse correlation coefficient of  $r = -0.86$  is obtained between the annual production and population indices for the entire survey period which began in 1978. Hunter success remained constant at 65.9 %.

#### A. Activity:

Job A. Turkey Production Index Survey - This survey was conducted during the months of May through August from 1978 to 1991. Beginning in 1991, the survey period was shortened to June through August when statistical analysis of data indicated the shorter time period was adequate. Data collection and summary for the 2000 survey period is not complete.

Cooperators involved in data collection for this survey were field personnel of the Game Management Section, Fisheries Management Section, and Law Enforcement Section of the Wildlife Resources Division. Observations were those made during the course of their regular field duties. No special efforts were made to locate turkeys for the survey.

Records were maintained of all turkey broods and hens, with and without broods. The average number of poults seen per observer has proven to be the best measure to use as an index of production. Data were compiled on a statewide and physiographic region basis.

Job B. Turkey Hunting Population Index Survey - The hunter cooperators participating in the survey were obtained from names of prospects submitted by WRD personnel and current cooperators. Cooperators were also solicited through newspaper and magazine requests and programs to interest groups. In addition to these, randomly selected members of the Georgia Chapter of the National Wild Turkey Federation were contacted to bring the total potential cooperating hunters to 2,000.

This survey is conducted during the regular spring gobbler hunting season which begins the third Saturday in March and ends May 15. Specific information requested about each hunting trip was the date, hours hunted, county or physiographic region hunted, the number of turkeys seen, and the number of gobblers heard. Kill information was also requested, but was an optional item. Hunt record forms were supplied to all cooperators along with full instructions and a short newsletter on survey findings from previous years.

The number of turkeys observed per unit of hunting effort is used as an index of the hunting season population. The correlation between the population indices and the production indices are used in evaluating annual production and populations and in making comparisons for trends. Data were calculated on a statewide and physiographic region basis.

B. Target Date for Achievement and Accomplishments:

Job A. Planned dates and dates of accomplishment coincide, June 30, 2000.

Job B. Planned dates and dates of accomplishment coincide, June 30, 2000.

C. Significant Deviations:

Job A. None

Job B. None

D. Finds:

Job A. In 1999, 447 broods were observed (Table 1). This total is substantially lower than in 1998 when the addition of the Fisheries Management personnel as observers inflated the figures. The average brood size of 7.1 poults is the fifth lowest in the history of the survey and is essentially equal to last years average of 7.0.

The statewide production index of 17.7 poults seen per observer is 20 % lower than that for 1998 (Table 3). The production index for each physiographic region was also down from 1998, except in the Lower Coastal Plain (LCP) where the index nearly doubled. In contrast when all other regions' productivity was increased in 1998 over the previous season the LCP was the only region that had decreased.

The number of hens reported totaled 1,657 (Table 4). This total can be misleading as an indicator due to variations in the number of observers from year to year. The percent of hens with poults, 34 %, was 14 percentage points lower than the 1998 total and was by far the lowest ever observed in the history of the survey (Table 5). The average number of poults per hen, 1.9, was down 21 % from 1998 and rivaled 1997's 1.8 poults per hen as the lowest in recorded history. Production overall for 1999 must be considered poor.

Job B. Usable hunt data was supplied by 446 cooperators. These cooperators reported spending a total of 15,663 hours hunting (Table 6). The average season hunter effort was 10.3 trips totaling 35.1 hours. They reported observing 8,954 turkeys and hearing 7,507 gobblers. The statewide population index of 1.7 was up 21.4 % from 1999 (1.4). The effort per gobbler heard of 2.1 hours was 12.5 % lower than that for the 1999 season (2.4). The least hunting effort per turkey seen occurred in the Valley & Ridge - Lookout Mountain Plateau region, and the greatest in the Blue Ridge Mountains and Piedmont Plateau. The effort per gobbler heard was least in the Upper and Lower Coastal Plains and highest in the Blue Ridge Mountains.

Peak gobbling activity, 2.6 gobblers heard per trip, occurred on the first weekend (Mar 25-26) of the season (Table 8). Gobbling activity remained high through the third weekend before dropping off somewhat and remaining relatively consistent throughout the rest of the season.

The statewide gobbler harvest during the first seven days of the season amounted to 30.0 % of the total season harvest, up 5 percentage points over the past two seasons (Table 9). Peak harvest was generally seen within the first seven days of the season in all parts of the state with the exception of the Blue Ridge Mountains where peak harvest occurred much later (Tables 10 and 11).

As for previous seasons, the greatest number of trips was made during the first seven days of the season (Tables 12 & 13). Only minor variations in hunting effort measures have occurred over the years.

Hunter success remained high at 65.9 % with 294 of 446 hunters reporting kill taking at least one gobbler. Of these, 106 (23.8 %) hunters took one bird, 134 (30.0 %) took two birds, and 46 (10.3 %) took three birds. Thirteen (13) hunters (2.9 %) reported taking or participated in taking more than three birds. Cooperators reported 42 gobblers killed by companions.

A relatively high inverse correlation,  $r = -0.86$ , continues to be indicated between the production index, poults per observer, and the population index, hours per turkey observed. (Correlation coefficient calculations exclude production indices for 1986 and 1994 and population indices for 1987 and 1995 due to aberrations associated with severe drought and flood.) With a 1999 production index of 17.7, the predicted 2000 population index is 1.9. The actual index from hunter observations is 1.7.

Table 1. Turkey broods and poult counts observed statewide in Georgia, 1978-1999.

Year	Broods		Poult	Est. Total
	Total	Poult Counts	Average	
1978	123	82	8.6	1,058
1979	183	160	8.6	1,565
1980	176	169	8.4	1,479
1981	264	241	7.6	2,006
1982	260	218	7.7	2,002
1983	298	261	8.8	2,622
1984	293	247	6.8	1,992
1985	324	274	7.2	2,333
1986	430	377	9.4	4,042
1987	347	328	9.7	3,366
1988	347	321	7.9	2,741
1989	322	306	9.0	2,898
1990	459	278	7.6	3,488
1991	289	213	7.1	2,039
1992	298	274	6.8	2,027
1993	328	303	8.2	2,676
1994	341	316	9.4	3,209
1995	408	386	10.4	4,209
1996	271	239	7.5	2,033
1997	408	304	6.5	2,613
1998	595	534	7.0	4,185
1999	447	364	7.1	3,170

Table 2. Turkey brood observations by physiographic region and month in Georgia, 1999.

Month	Region <sup>1</sup>					Total
	I	II	III	IV	V	
June	23	30	35	46	19	169
July	15	10	28	24	28	123
August	27	18	52	22	15	153
Totals	65	58	115	94	62	447

<sup>1</sup>Roman numerals correspond to physiographic regions as follows:

- I - Valley and Ridge Lookout Mountain Plateau
- II - Blue Ridge Mountains
- III - Piedmont
- IV - Upper Coastal Plain
- V - Lower Coastal Plain

Table 3. Average number of turkey poult seen per observer (production index) in Georgia, 1978-99.

Physiographic																	
Region	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994
I	4.84	0	4.80	3.45	3.52	10.30	9.09	7.20	23.19	27.87	22.10	30.70	18.92	21.19	15.93	26.75	38.68
II	11.18	5.70	3.85	5.32	10.36	21.21	16.54	7.90	36.62	19.79	34.61	21.82	19.89	7.07	12.89	17.31	20.11
III	7.04	8.88	11.13	12.12	14.79	20.24	11.01	15.93	22.99	23.11	18.80	21.72	23.06	20.69	15.90	22.03	25.22
IV	3.86	5.16	5.23	7.15	11.44	9.42	8.78	15.03	23.03	11.54	12.01	12.72	10.83	7.71	7.84	14.91	19.17
V	6.28	7.36	3.63	8.89	5.37	5.19	6.37	10.93	13.74	6.60	9.32	8.12	20.10	5.27	10.32	11.15	8.00
Statewide	7.50	6.33	7.31	8.72	10.77	13.29	10.02	13.07	22.42	17.31	16.05	17.53	18.88	12.01	12.39	16.39	20.63

Table 3. Continued.

Physiographic					
Region	1995	1996	1997	1998	1999
I	66.3	32.3	20.8	42.9	30.3
II	22.06	16.2	13.7	21.5	19.9
III	48.99	26.9	26.6	29.5	18.2
IV	21.0	16.5	14.1	22.6	21.2
V	14.83	4.5	9.1	6.2	11.0
Statewide	31.78	18.9	16.2	22.1	17.7

Table 4. Turkey hens observed with poults, without poults, and uncertain of accompanying poults statewide in Georgia, 1978-99.

Year	Hens Reported			Total
	With Poults	Without Poults	Uncertain of Poults	
1978	145	70	26	241
1979	176	131	39	346
1980	166	133	15	314
1981	276	116	66	458
1982	327	136	24	487
1983	361	211	72	644
1984	261	232	59	552
1985	475	251	81	807
1986	648	283	84	1,015
1987	519	230	52	801
1988	529	305	59	893
1989	459	261	48	768
1990	642	371	49	1,062
1991	321	399	59	779
1992	407	490	59	956
1993	374	292	41	707
1994	463	361	66	890
1995	606	301	83	990
1996	298	384	74	756
1997	560	618	271	1,449
1998	820	661	236	1,717
1999	560	753	344	1,657

Table 5. Percent of turkey hens accompanied by poults (2nd potential population index) and the average number of poults per hen statewide in Georgia, 1978-99.

Year	Percent Hens With Poults	Poults Per Hen
1978	60	4.4
1979	51	4.5
1980	53	4.7
1981	60	4.4
1982	67	4.1
1983	56	4.1
1984	47	3.6
1985	59	3.6
1986	64	4.4
1987	65	4.2
1988	59	3.1
1989	60	3.8
1990	60	3.3
1991	41	2.6
1992	43	2.1
1993	56	3.8
1994	56	3.6
1995	61	4.3
1996	39	2.7
1997	39	1.8
1998	48	2.4
1999	34	1.9

Table 6. Summary of turkey hunter cooperator data in Georgia, 2000.

Item	Physiographic Region <sup>1</sup>					Statewide
	I	II	III	IV	V	
Total Hunters	30	17	239	101	56	446
Total Hours	1,253	679	8,195	3,671	1,865	15,663
Total Trips	387	203	2,274	1,127	610	4,601
Avg. Hours	41.8	39.9	34.3	36.3	33.3	35.1
Avg. Trips	12.9	11.9	9.5	11.2	10.9	10.3
Avg. Hrs./Trip	3.2	3.3	3.6	3.3	3.1	3.4
Total Turkeys Seen	887	289	4,118	2,429	1,231	8,954
Hrs./Turkeys Seen	1.4	2.3	2.0	1.5	1.5	1.7
Total Gobblers Heard	601	181	3,664	2,027	1,034	7,507
Hrs./Gobbler Heard	2.1	3.8	2.2	1.8	1.8	2.1
Total Kill	45	20	288	160	81	594
Companion Killed	0	0	18	22	15	42
Hours/Kill	27.8	34.0	28.5	22.9	23.0	26.4

<sup>1</sup>Roman numerals correspond to physiographic regions as follows:

- I - Valley and Ridge Lookout Mountain Plateau
- II - Blue Ridge Mountains
- III - Piedmont
- IV - Upper Coastal Plain
- V - Lower Coastal Plain



Table 7. Turkey hunting population indices in Georgia, 1979-2000.

Population Index	Hunt Season	Physiographic Region					Statewide
		I	II	III	IV	V	
Hours/Turkey Seen	1979	20.5	3.5	2.9	3.1	2.8	3.0
	1980	1.6	6.0	2.9	2.6	2.4	3.1
	1981	1.5	4.7	2.2	3.2	2.8	2.5
	1982	2.2	5.0	2.8	3.3	1.8	2.9
	1983	2.5	3.1	2.2	2.0	1.9	2.3
	1984	2.2	4.1	2.4	1.6	1.5	2.3
	1985	2.3	3.4	2.6	2.5	3.5	2.6
	1986	3.2	4.6	2.3	2.0	3.4	2.5
	1987	4.1	2.9	2.6	1.7	2.1	2.4
	1988	1.0	2.9	1.9	1.6	2.1	1.8
	1989	1.7	2.3	2.3	1.6	1.2	1.9
	1990	1.8	2.8	2.0	1.9	1.7	2.0
	1991	1.6	2.3	2.0	1.7	1.8	1.9
	1992	1.4	2.7	2.4	1.7	2.3	2.1
	1993	2.0	4.0	2.5	1.6	1.6	2.1
	1994	2.4	2.2	2.1	1.6	1.4	1.9
	1995	1.7	2.2	2.4	1.8	2.0	2.1
	1996	1.2	1.8	1.6	1.6	1.5	1.5
	1997	1.0	2.1	1.8	1.5	1.3	1.6
	1998	1.0	1.9	1.9	1.7	1.4	1.7
1999	0.9	2.7	1.5	1.4	1.5	1.4	
2000	1.4	2.3	2.0	1.5	1.5	1.7	
Hours/Gobbler Heard	1979	50.7	7.3	3.3	2.1	1.8	3.2
	1980	2.9	4.7	3.4	2.9	9.1	3.4
	1981	2.9	4.4	3.0	2.3	2.0	2.9
	1982	3.1	3.6	3.0	2.3	2.3	2.9
	1983	4.4	2.8	3.3	2.0	2.4	2.8
	1984	3.1	5.2	3.3	1.8	1.4	3.0
	1985	2.4	4.2	2.9	1.8	3.0	2.6
	1986	2.6	3.4	2.1	1.3	1.6	2.0
	1987	2.2	5.2	2.4	1.7	2.0	2.4
	1988	1.5	2.6	2.7	1.4	1.6	2.2
	1989	2.1	2.1	2.1	1.5	2.1	1.9
	1990	2.3	4.2	2.5	1.7	1.7	2.2
	1991	2.7	5.5	2.7	2.0	2.9	2.7
	1992	2.4	4.2	2.9	1.8	1.6	2.6
	1993	3.2	6.3	3.6	2.1	2.7	3.1
	1994	3.4	6.1	3.5	1.9	2.2	2.9
	1995	2.0	3.3	2.5	1.9	2.1	2.3
	1996	3.3	3.5	2.7	2.0	2.1	2.5
	1997	2.3	5.6	2.2	1.6	2.2	2.2
	1998	2.5	4.1	2.7	1.9	2.1	2.4
1999	2.7	3.7	2.8	1.7	2.0	2.4	
2000	2.1	3.8	2.2	1.8	1.8	2.1	

Table 7. Continued.

Population Index	Hunt Season	Physiographic Region					Statewide
		I	II	III	IV	V	
Hours/Gobbler	1979	96.5	79.8	35.1	27.5	23.3	35.7
Killed	1980	13.2	35.7	39.6	35.8	19.1	35.9
	1981	10.7	29.5	31.0	29.9	23.0	30.7
	1982	25.5	90.3	29.7	30.0	19.0	31.3
	1983	30.9	29.7	27.8	28.3	22.6	27.4
	1984	31.1	45.8	35.3	31.4	12.8	34.0
	1985	22.2	48.2	38.7	24.0	32.4	33.6
	1986	23.0	42.1	28.6	21.9	16.0	26.7
	1987	35.4	68.3	30.4	25.8	32.1	32.1
	1988	17.6	25.3	35.9	18.9	18.7	28.0
	1989	22.6	41.4	29.8	17.0	21.1	24.8
	1990	29.8	55.2	29.3	26.4	16.3	28.3
	1991	42.7	48.4	36.9	24.7	23.2	33.9
	1992	44.9	49.4	45.3	20.9	22.0	36.7
	1993	32.2	46.5	46.0	19.8	38.7	34.9
	1994	36.2	42.0	36.9	20.9	18.7	30.1
	1995	25.4	29.9	25.3	18.6	18.7	22.7
	1996	28.9	34.1	29.3	25.9	26.0	26.8
	1997	28.7	38.8	31.9	19.6	20.7	27.7
	1998	29.2	35.8	29.2	23.3	19.0	26.3
	1999	28.0	50.6	33.6	19.1	24.2	27.8
	2000	27.8	34.0	28.5	22.9	23.0	26.4

Table 8. Number of turkey gobblers heard per hunting trip in Georgia, 2000.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/25-3/26		2.1	1.4	2.7	2.8	2.4	2.6
	3/27-3/31	1.6	0.8	1.9	2.2	1.9	1.9
4/01-4/02		1.6	1.3	1.9	2.5	1.9	1.9
	4/03-4/07	1.4	1.1	1.6	2.0	1.5	1.7
4/08-4/09		1.5	0.7	1.3	1.7	1.6	1.8
	4/10-4/14	1.2	1.1	1.4	1.6	1.6	1.5
4/15-4/16		1.7	0.9	1.5	1.3	1.2	1.4
	4/17-4/21	1.5	0.7	1.1	1.3	1.4	1.3
4/22-4/23		1.5	1.0	1.3	1.4	1.2	1.3
	4/24-4/28	1.5	0.4	1.0	1.2	1.2	1.1
4/29-4/30		2.0	0.9	1.3	1.6	1.7	1.4
	5/01-5/05	1.4	0.7	1.1	1.4	2.1	1.3
5/06-5/07		1.7	1.2	1.5	1.3	1.8	1.5
	5/08-5/12	1.4	0.3	0.9	1.5	1.1	1.1
5/13-5/14		0.9	0.4	0.9	0.5	1.8	1.0
	5/15	0.3	0.0	0.5	0.6	0.3	0.5
Season		1.5	0.9	1.6	1.8	1.7	1.6

Table 9. Chronological summary of turkey gobbler harvest in Georgia, 2000.

Date		Gobblers	% of Season Kill	
Weekend	Weekday	Killed	Date	Cumulative
3/25-3/26		48	11.6	11.6
	3/27-3/31	76	18.4	30.0
4/01-4/02		14	3.4	33.4
	4/03-4/07	40	9.7	43.1
4/08-4/09		11	2.7	45.8
	4/10-4/14	11	2.7	48.5
4/15-4/16		21	5.1	53.6
	4/17-4/21	29	7.0	60.6
4/22-4/23		14	3.4	64.0
	4/24-4/28	25	6.0	70.0
4/29-4/30		25	6.0	76.0
	5/01-5/05	31	7.5	83.5
5/06-5/07		20	4.8	88.3
	5/08-5/12	38	9.2	97.5
5/13-5/14		5	1.2	98.7
	5/15	6	1.4	100.0
Total		414	100.0	100.0

Table 10. Chronological distribution of turkey gobbler harvest by physiographic region in Georgia, 2000.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/25-3/26		2	0	27	14	5	48
	3/27-3/31	8	1	39	17	10	76
4/01-4/02		2	0	0	6	2	14
	4/03-4/07	5	2	19	10	7	40
4/08-4/09		1	1	5	2	2	11
	4/10-4/14	3	1	8	6	3	11
4/15-4/16		1	3	2	5	4	21
	4/17-4/21	4	1	14	7	5	29
4/22-4/23		0	0	3	2	0	14
	4/24-4/28	1	1	4	5	3	25
4/29-4/30		0	1	9	10	4	25
	5/01-5/05	2	1	12	9	1	31
5/06-5/07		0	0	2	0	1	20
	5/08-5/12	3	1	19	3	7	38
5/13-5/14		0	0	0	0	0	5
	5/15	1	0	2	0	1	6
Season		33	13	165	96	55	414

Table 11. Chronological distribution of turkey gobbler harvest (%) by physiographic region in Georgia, 2000.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/25-3/26		6.1	0.0	16.4	14.6	9.1	11.6
	3/27-3/31	24.2	7.7	23.6	17.7	18.2	18.4
4/01-4/02		6.1	0.0	0.0	6.3	3.6	3.4
	4/03-4/07	15.2	15.4	11.5	10.4	12.7	9.7
4/08-4/09		3.0	7.7	3.0	2.1	3.6	2.7
	4/10-4/14	9.1	7.7	4.8	6.3	5.5	2.7
4/15-4/16		3.0	23.1	1.2	5.2	7.3	5.1
	4/17-4/21	12.1	7.7	8.5	7.3	9.1	7.0
4/22-4/23		0.0	0.0	1.8	2.1	0.0	3.4
	4/24-4/28	3.0	7.7	2.4	5.2	5.5	6.0
4/29-4/30		0.0	7.7	5.5	10.4	7.3	6.0
	5/01-5/05	6.1	7.7	7.3	9.4	1.8	7.5
5/06-5/07		0.0	0.0	1.2	0.0	1.8	4.8
	5/08-5/12	9.1	7.7	11.5	3.1	12.7	9.2
5/13-5/14		0.0	0.0	0.0	0.0	0.0	1.2
	5/15	3.0	0.0	1.2	0.0	1.8	1.4

Table 12. Chronological distribution of turkey hunting trips by physiographic region in Georgia, 2000.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/25-3/26		45	14	321	128	71	584
	3/27-3/31	45	13	311	136	76	592
4/01-4/02		24	11	201	91	46	382
	4/03-4/07	35	18	192	128	69	449
4/08-4/09		14	11	126	73	34	206
	4/10-4/14	34	21	165	91	33	346
4/15-4/16		29	17	137	70	27	284
	4/17-4/21	31	11	156	88	44	334
4/22-4/23		17	11	114	52	29	225
	4/24-4/28	26	9	115	51	40	242
4/29-4/30		17	14	107	45	23	209
	5/01-5/05	18	14	92	59	32	217
5/06-5/07		17	17	74	38	29	176
	5/08-5/12	14	15	80	42	28	179
5/13-5/14		14	7	56	19	22	119
	5/15	6	0	21	11	4	42
Season		387	203	2,274	1,127	610	4,601

Table 13. Chronological distribution of turkey hunting trips (%) by physiographic region in Georgia, 2000.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/25-3/26		11.6	6.9	14.1	11.4	11.6	12.7
	3/27-3/31	11.6	6.4	13.7	12.1	12.5	12.9
4/01-4/02		6.2	5.4	8.8	8.1	7.5	8.3
	4/03-4/07	9.0	8.9	8.4	11.4	11.3	9.8
4/08-4/09		3.6	5.4	5.5	6.5	5.6	4.5
	4/10-4/14	8.8	10.3	7.3	8.1	5.4	7.5
4/15-4/16		7.5	8.4	6.0	6.2	4.4	6.2
	4/17-4/21	8.0	5.4	6.9	7.8	7.2	7.3
4/22-4/23		4.4	5.4	5.0	4.6	4.8	4.9
	4/24-4/28	6.7	4.4	5.1	4.5	6.6	5.3
4/29-4/30		4.4	6.9	4.7	4.0	3.8	4.5
	5/01-5/05	4.7	6.9	4.0	5.2	5.2	4.7
5/06-5/07		4.4	8.4	3.3	3.4	4.8	3.8
	5/08-5/12	3.6	7.4	3.5	3.7	4.6	3.9
5/13-5/14		3.6	3.4	2.5	1.7	3.6	2.6
	5/15	1.6	0.0	0.9	1.0	0.7	0.9