

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

LONG RANGE PERFORMANCE REPORT

Grant Title: State Funded Wildlife Survey

Period Covered: July 1, 2002 - June 30, 2003

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 2002 (24.1) was 12.9% higher than the 2001 index (21.3). Additionally, the population index, hours hunted by cooperators per turkey seen, for 2003 was 1.5, which is 57.7% lower than the index for 2002 (2.6). An inverse correlation coefficient of $r = -0.79$ is obtained between the annual production and population indices for the entire survey period which began in 1978. Hunter success fell slightly to 68.0% from 74.2% in 2002.

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 2003 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 first Saturday after March 19 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, 2003.

Job B. Planned dates and dates of accomplishment coincide, June 30, 2003.

C. Significant Deviations:

Job A. None

Job B. None

D. Finds:

Job A. In 2002, 648 broods were observed (Table 1). This total is substantially higher than in 2001, when 493 broods were observed. The average brood size of 6.0 poults is lower than last year's average of 7.0.

The statewide production index of 24.1 poults seen per observer is 12.9 % higher than that for 2001 (Table 3). The production index for each physiographic region was up in all regions except in the Valley and Ridge – Lookout Mountain Plateau (VRL or I) and the Blue Ridge Mountains (BRM or II), where the index was at least slightly down. The index for the Lower Coastal Plain (LCP or IV) almost doubled in 2002.

The number of hens reported totaled 1,559 (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, 44.6 %, was 9.8 percentage points higher than the 2001 total (Table 5). The average number of poults per hen, 2.5, was up 13.5 % from 2001 and indicates a slight improvement in total reproduction. Production overall for 2002 must be considered fair. An average of 3 poults per hen would be considered good.

Job B. Usable hunt data was supplied by 435 cooperators. These cooperators reported spending a total of 14,959 hours hunting (Table 6). The average season hunter effort was 10.0 trips totaling 34.4 hours. They reported observing 9,818 turkeys and hearing 7,858 gobblers. The statewide population index of 1.5 was roughly the same as in 2002. The effort per gobbler heard of 1.9 hours was markedly lower than that for the 2002 season (3.2). The least hunting effort per turkey seen occurred in the Upper Coastal Plain Region, and the Blue Ridge Mountain region. The effort per gobbler heard was least in the Piedmont Plateau and the Lower Coastal Plain and highest in the Blue Ridge Mountains.

Peak gobbling activity, 2.7 gobblers heard per trip, occurred during the fourth week (April 14-18). The next highest period was the opening weekend (March 22-23) of the season with 2.5 gobblers heard per trip. All other periods averaged between 0.9 and 2.0 gobblers per trip, with the final week (May 12-15) averaging the lowest at 0.9 per trip. Gobbling activity showed noticeable upward trends at the beginning and the middle of the season (Table 8).

The statewide gobbler harvest during the first seven days of the season amounted to 35.0% of the total season harvest, which is slightly higher than last season (Table 9). Peak harvest was generally seen within the first seven days of the season in all parts of the state (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 and 13). Only minor variations in hunting effort measures have occurred over the years.

Hunter success fell slightly to 68.0 % with 296 of 435 hunters reporting kill taking at least one gobbler. Of these, 288 (66.2 %) hunters took or assisted in taking one bird, 71 (16.3 %) took or assisted in taking two birds, and 50 (11.4 %) took or assisted in taking three birds. Cooperators reported 53 gobblers killed by companions.

A relatively high inverse correlation, $r = -0.79$, 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 2002 production index of 24.1, the predicted 2003 population index is 1.5. The actual index from hunter observations is 1.5.

Table 1. Turkey broods and poult counts observed statewide in Georgia, 1978-2002.

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
2000	393	358	7.2	2,809
2001	493	431	7.0	3,017
2002	648	618	6.0	3,894

Table 2. Turkey brood observations by physiographic region and month in Georgia, 2002.

Month	Region ¹					Total
	I	II	III	IV	V	
June	16	43	34	40	24	157
July	37	35	39	54	33	198
August	75	88	79	35	16	293
Totals	128	166	152	129	73	648

¹Roman 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, 1978-2002.

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	2000	2001	2002
I	66.3	32.3	20.8	42.9	30.3	33.6	48.8	47.3
II	22.06	16.2	13.7	21.5	19.9	37.0	32.2	23.2
III	48.99	26.9	26.6	29.5	18.2	22.5	24.4	28.8
IV	21.0	16.5	14.1	22.6	21.2	17.4	18.9	21.7
V	14.83	4.5	9.1	6.2	11.0	8.1	9.6	13.9
Statewide	31.78	18.9	16.2	22.1	17.7	18.2	21.3	24.1

Table 4. Turkey hens observed with poults, without poults, and uncertain of accompanying poults statewide in Georgia, 1978-2002.

Year	Hens Reported		Uncertain of Poults	Total
	With Poults	Without 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	1015
1987	519	230	52	801
1988	529	305	59	893
1989	459	261	48	768
1990	642	371	49	1062
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	1449
1998	820	661	236	1717
1999	560	753	344	1657
2000	734	577	251	1562
2001	634	589	337	1560
2002	695	644	220	1559

Table 5. Percent of turkey hens accompanied by poults (2nd potential population index) and the average number of poults per hen statewide in Georgia, 1978-2002.

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
2000	47	1.8
2001	41	2.2
2002	45	2.5

Table 6. Summary of turkey hunter cooperator data in Georgia, 2003.

Item	Physiographic Region ¹					Statewide
	I	II	III	IV	V	
Total Hunters	35	16	220	121	43	435
Total Hours	1,358	593	7,823	3,560	1,625	14,959
Total Trips	407	593	2,237	1,031	512	4,353
Avg. Hours	38.8	37.1	35.6	29.4	37.8	34.4
Avg. Trips	11.6	10.4	10.2	8.5	11.9	10.0
Avg. Hrs./Trip	3.3	3.6	3.5	3.5	3.2	3.4
Total Turkeys Seen	930	338	4,956	2,482	1,112	9,818
Hrs./Turkeys Seen	1.5	1.8	1.6	1.4	1.5	1.5
Total Gobblers Heard	730	295	4,255	1,699	879	7,858
Hrs./Gobbler Heard	1.9	2.0	1.8	2.1	1.8	1.9
Total Kill	63	27	293	134	64	580*
Companion Killed	9	5	16	9	14	53
Hours/Kill	21.6	22.8	26.7	26.4	25.4	25.7

¹Roman 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

*includes both gobblers taken and assisted in taking

Table 7. Turkey hunting population indices in Georgia, 1979-2003.

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	
2001	4.2	3.4	1.3	1.7	1.4	1.7	
2002	3.9	3.7	1.2	2.2	1.9	2.6	
2003	1.5	1.8	1.6	1.4	1.5	1.5	
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	
2001	4.8	5.4	1.8	2.4	2.7	2.4	
2002	4.2	4.9	1.6	2.8	2.6	3.2	
2003	1.9	2.0	1.8	2.1	1.8	1.9	

Table 7. Continued.

Population Index	Hunt Season	Physiographic Region					Statewide
		I	II	III	IV	V	
Hours/Gobbler Killed	1979	96.5	79.8	35.1	27.5	23.3	35.7
	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	
2001	60.6	48.3	22.6	25.7	23.2	27.9	
2002	59.7	43.6	21.1	27.6	19.2	34.2	
2003	21.6	22.8	26.7	26.4	25.4	25.7	

Table 8. Number of turkey gobblers heard per hunting trip in Georgia, 2003.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/22-3/23		2.5	2.3	2.4	2.3	3.1	2.5
	3/24-3/28	1.5	1.4	1.8	1.6	2.7	1.8
3/29-3/30		1.3	2.3	1.8	1.9	1.6	1.8
	3/31-4/04	2.1	1.6	1.9	1.7	2.5	2.0
4/05-4/06		1.8	1.9	1.7	1.7	2.0	1.8
	4/07-4/11	1.4	0.3	1.1	1.0	0.8	0.9
4/12-4/13		1.9	2.2	2.0	2.0	1.9	2.0
	4/14-4/18	1.7	NA	5.1	1.4	2.4	2.7
4/19-4/20		1.8	NA	1.4	1.1	1.2	1.4
	4/21-4/25	1.9	NA	1.0	1.5	1.4	1.5
4/26-4/27		1.5	NA	1.4	1.3	1.2	1.4
	4/28-5/02	1.3	NA	1.2	1.1	1.2	1.2
5/03-5/04		0	NA	1.4	1.1	1.2	0.9
	5/05-5/09	NA	NA	1.0	0.8	1.3	1.0
5/10-5/11		NA	NA	1.0	1.6	1.0	1.2
	5/12-5/15	1.2	NA	1.1	1.6	1.0	1.2
Season		1.6	1.7	1.7	1.5	1.7	1.6

Table 9. Chronological summary of turkey gobbler harvest in Georgia, 2003.

Date		Gobblers	% of Season Kill	
Weekend	Weekday	Killed	Date	Cumulative
3/22-3/23		111	19	19
	3/24-3/28	93	16	35
3/29-3/30		37	7	42
	3/31-4/04	68	11	53
4/05-4/06		48	9	62
	4/07-4/11	27	4	66
4/12-4/13		31	6	72
	4/14-4/18	32	5	77
4/19-4/20		23	4	81
	4/21-4/25	19	3	84
4/26-4/27		15	3	87
	4/28-5/02	19	3	90
5/03-5/04		17	3	93
	5/05-5/09	16	3	96
5/10-5/11		10	2	98
	5/12-5/15	14	2	100
Total		580	100	100

Table 10. Chronological distribution of turkey gobbler harvest by physiographic region in Georgia, 2003.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/22-3/23		14	5	54	31	7	111
	3/24-3/28	17	9	40	18	9	93
3/29-3/30		5	3	12	13	4	37
	3/31-4/04	14	2	30	15	7	68
4/05-4/06		5	5	23	10	5	48
	4/07-4/11	2	0	19	5	1	27
4/12-4/13		2	1	20	4	4	31
	4/14-4/18	4	10	15	9	4	32
4/19-4/20		0	0	14	7	2	23
	4/21-4/25	0	0	10	4	5	19
4/26-4/27		0	0	13	2	0	15
	4/28-5/02	0	0	13	3	3	19
5/03-5/04		0	0	13	3	1	17
	5/05-5/09	0	0	8	1	7	16
5/10-5/11		0	0	4	3	3	10
	5/12-5/15	0	0	6	5	2	13
Season		63	26	293	134	64	580

Table 11. Chronological distribution of turkey gobbler harvest (%) by physiographic region in Georgia, 2003.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/22-3/23		22	19	18	23	11	19
	3/24-3/28	27	35	14	13	14	16
3/29-3/30		9	12	4	10	1	7
	3/31-4/04	22	8	10	11	11	11
4/05-4/06		8	19	8	7	8	9
	4/07-4/11	3	0	6	4	2	4
4/12-4/13		3	4	7	3	6	6
	4/14-4/18	6	0	5	7	6	5
4/19-4/20		0	0	5	5	3	4
	4/21-4/25	0	0	3	3	8	3
4/26-4/27		0	0	4	1	0	3
	4/28-5/02	0	0	4	2	5	3
5/03-5/04		0	0	4	2	2	3
	5/05-5/09	0	0	3	1	11	3
5/10-5/11		0	0	1	2	5	2
	5/12-5/15	0	0	2	4	3	2

Table 12. Chronological distribution of turkey hunting trips by physiographic region in Georgia, 2003.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/22-3/23		62	30	298	158	27	575
	3/24-3/28	107	57	288	174	42	668
3/29-3/30		44	21	148	71	21	305
	3/31-4/04	65	32	188	120	42	447
4/05-4/06		26	17	164	66	25	298
	4/07-4/11	22	4	128	46	39	239
4/12-4/13		27	5	171	56	26	285
	4/14-4/18	28	0	155	79	54	316
4/19-4/20		6	0	126	41	22	195
	4/21-4/25	7	0	103	52	43	205
4/26-4/27		2	0	109	39	27	177
	4/28-5/02	4	0	102	33	48	187
5/03-5/04		1	0	78	21	22	122
	5/05-5/09	0	0	74	15	20	109
5/10-5/11		0	0	54	24	18	96
	5/12-5/15	5	0	52	37	33	127
Season		407	166	2,237	1,031	512	4,353

Table 13. Chronological distribution of turkey hunting trips (%) by physiographic region in Georgia, 2003.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/22-3/23		15	18	13	15	5	13
	3/24-3/28	26	34	13	17	8	15
3/29-3/30		11	13	7	7	7	7
	3/31-4/04	16	19	8	12	8	10
4/05-4/06		6	10	7	6	6	7
	4/07-4/11	5	2	6	4	8	5
4/12-4/13		7	3	8	5	5	7
	4/14-4/18	7	0	7	8	11	7
4/19-4/20		1	0	6	4	4	4
	4/21-4/25	2	0	5	5	8	5
4/26-4/27		<1	0	5	4	5	4
	4/28-5/02	1	0	5	3	9	3
5/03-5/04		<1	0	3	2	4	3
	5/05-5/09	0	0	3	1	4	3
5/10-5/11		0	0	2	2	4	2
	5/12-5/15	1	0	2	4	6	3