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

LONG RANGE PERFORMANCE REPORT

Grant Title: State Funded Wildlife Survey

Period Covered: July 1, 2001 - June 30, 2002

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, poults seen per observer, for 2001 (21.3) was 17.1% higher than the 2000 index (18.2). In addition, the population index, hours hunted by cooperators per turkey seen, for 2002 was 2.6, which is 34.6% higher than the index for 2001 (1.7). An inverse correlation coefficient of r = -0.77 is obtained between the annual production and population indices for the entire survey period which began in 1978. Hunter success rose significantly to 74.2% from 46.6% in 2001.

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 2002 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, 2002.

Job B. Planned dates and dates of accomplishment coincide, June 30, 2002.

C. Significant Deviations:

Job A. None

Job B. None

D. Finds:

Job A. In 2001, 493 broods were observed (Table 1). This total is substantially higher than in 2000, when 393 broods were observed. The average brood size of 7.0 poults is essentially the same as last year's average of 7.2.

The statewide production index of 21.3 poults seen per observer is 17.1 % higher than that for 2000 (Table 3). The production index for each physiographic region was at least slightly up in all regions except in the Blue Ridge Mountains (BRM), where the index was slightly down. The index for the Valley and Ridge – Lookout Mountain Plateau (VRL) almost doubled in 2001.

The number of hens reported totaled 1,560 (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, 40.6 %, was 13.5 percentage points lower than the 2000 total (Table 5). The average number of poults per hen, 2.2, was up 22.3 % from 2000 and indicates a fairly significant improvement in total reproduction. Production overall for 2001 must be considered fair. An average of 3 poults per hen would be considered good.

Job B. Usable hunt data was supplied by 446 cooperators. These cooperators reported spending a total of 12,989 hours hunting (Table 6). The average season hunter effort was 8.5 trips totaling 36.4 hours. They reported observing 9,212 turkeys and hearing 7,017 gobblers. The statewide population index of 1.8 was roughly the same as in 2001. The effort per gobbler heard of 3.2 hours was markedly higher than that for the 2001 season (2.3). The least hunting effort per turkey seen occurred in the Piedmont Plateau, and the greatest in the Valley & Ridge - Lookout Mountain Plateau region. The effort per gobbler heard was least in the Piedmont Plateau and highest in the Blue Ridge Mountains.

Peak gobbling activity, 2.5 gobblers heard per trip, occurred during the opening weekend (March 23-24) of the season (Table 8). The next highest period was the fifth week (April 22-26) of the season with 2.4 gobblers heard per trip. All other periods averaged between 1.0 and 2.3 gobblers per trip, with the final week (May 13-15) averaging the lowest at 1.0 per trip. Gobbling activity showed noticeable upward trends at the beginning and the middle of the season.

The statewide gobbler harvest during the first seven days of the season amounted to 32.0 % 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 with the exception of the Valley and Ridge – Lookout Mountain Plateau and Blue Ridge Mountains where peak harvest occurred in the middle of the season (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 rose significantly to 74.2 % with 331 of 446 hunters reporting kill taking at least one gobbler. Of these, 240 (72.5 %) hunters took one bird, 52 (15.7 %) took two birds, and 39 (11.8 %) took three birds. Cooperators reported 37 gobblers killed by companions.

A relatively high inverse correlation, $r = -0.77$, 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 2001 production index of 21.3, the predicted 2002 population index is 1.7. The actual index from hunter observations is 2.6.

Table 1. Turkey broods and poults observed statewide in Georgia, 1978-2001.

Year	Broods		Poults	
	Total	Poult Counts	Brood Average	Est. Total
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

Table 2. Turkey brood observations by physiographic region and month in Georgia, 2001.

Month	Region[1]					Total
	I	II	III	IV	V	
June	30	20	41	41	21	153
July	41	23	62	60	29	215
August	22	12	37	37	17	125
Totals	93	55	140	138	67	493

[1]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 poults seen per observer (production index) in Georgia, 1978-2001.

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

Table 4. Turkey hens observed with poults, without poults, and uncertain of accompanying poults statewide in Georgia, 1978-2001.

Year	Hens Reported			
	With Poults	Without Poults	Uncertain of Poults	Total
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
2000	734	577	251	1,562
2001	634	589	337	1560

Table 5. Percent of turkey hens accompanied by poults (2nd potential population index) and the average number of poults per hen statewide in Georgia, 1978-2001.

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

Table 6. Summary of turkey hunter cooperator data in Georgia, 2002.

Item	Physiographic Region[1]					
	I	II	III	IV	V	Statewide
Total Hunters	38	41	201	108	58	446
Total Hours	2,456	1,487	5,271	2,860	915	12,989
Total Trips	317	251	1,967	847	524	3,906
Avg. Hours	58.1	37.6	24.7	31.8	29.6	36.4
Avg. Trips	7.9	6.1	10.2	8.5	9.9	8.5
Avg. Hrs./Trip	7.4	6.2	2.4	3.7	3.0	4.3
Total Turkeys Seen	642	416	5,002	1,734	1,418	9,212
Hrs./Turkeys Seen	3.9	3.7	1.2	2.2	1.9	2.6
Total Gobblers Heard	555	362	4,104	1,179	817	7,017
Hrs./Gobbler Heard	4.2	4.9	1.6	2.8	2.6	3.2
Total Kill	32	19	286	91	33	461
Companion Killed	2	2	18	8	7	37
Hours/Kill	59.7	43.6	21.1	27.6	19.2	34.2

[1]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, 1979-2002.

Population Index	Hunt Season	Physiographic Region I	II	III	IV	V	Statewide
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
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

Table 7. Continued.

Population Index	Hunt Season	Physiographic Region I	II	III	IV	V	Statewide
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

Table 8. Number of turkey gobblers heard per hunting trip in Georgia, 2002.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		2.8	2.4	2.6	3.1	0.8	2.5
	3/25-3/29	1.5	1.8	2.5	2.8	1.2	2.3
3/30-3/31		0.8	1.8	1.2	1.3	1.2	1.2
	4/01-4/05	0.9	2.2	1.5	1.6	1.3	1.4
4/06-4/07		0.6	2.3	2.0	0.7	2.0	1.6
	4/08-4/12	2.7	2.3	1.3	1.8	2.4	1.7
4/13-4/14		1.7	1.4	1.8	2.9	1.5	2.0
	4/15-4/19	1.9	2.3	1.6	1.1	1.8	1.5
4/20-4/21		2.1	0.9	2.7	0.7	2.1	1.9
	4/22-4/26	2.0	2.1	4.3	0.6	2.2	2.4
4/27-4/28		2.0	0.7	1.9	0.6	1.9	1.5
	4/29-5/03	1.7	1.3	3.5	0.9	2.0	2.1
5/04-5/05		4.0	1.3	4.4	0.8	2.1	2.3
	5/06-5/10	2.1	0.7	2.9	0.3	1.0	1.1
5/11-5/12		3.5	1.2	3.2	0.5	1.4	1.6
	5/13-5/15	3.6	0.5	2.0	0.2	1.4	1.0
Season		1.8	1.4	2.1	1.4	1.6	1.8

Table 9. Chronological summary of turkey gobbler harvest in Georgia, 2002.

Date		Gobblers	% of Season Kill	
Weekend	Weekday	Killed	Date	Cumulative
3/23-3/24		82	17.8	17.8
	3/25-3/29	65	14.2	32.0
3/30-3/31		41	8.9	40.9
	4/01-4/05	41	8.9	49.8
4/06-4/07		39	8.5	58.3
	4/08-4/12	43	9.3	67.6
4/13-4/14		35	7.6	75.2
	4/15-4/19	38	8.2	83.4
4/20-4/21		25	5.4	88.8
	4/22-4/26	14	3.0	91.8
4/27-4/28		8	1.7	93.5
	4/29-5/03	7	1.5	95.0
5/04-5/05		7	1.5	96.5
	5/06-5/10	4	0.9	97.4
5/11-5/12		8	1.7	99.1
	5/13-5/15	4	0.9	100.0
Total		461	100.0	100.0

Table 10. Chronological distribution of turkey gobbler harvest by physiographic region in Georgia, 2002.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		2	0	63	13	4	82
	3/25-3/29	3	0	52	8	2	65
3/30-3/31		1	0	25	12	3	41
	4/01-4/05	3	0	26	8	4	41
4/06-4/07		0	1	26	10	2	39
	4/08-4/12	4	0	28	8	3	43
4/13-4/14		3	0	24	6	2	35
	4/15-4/19	5	8	12	9	4	38
4/20-4/21		5	3	7	7	3	25
	4/22-4/26	1	0	8	4	1	14
4/27-4/28		2	2	3	1	0	8
	4/29-5/03	1	1	3	0	2	7
5/04-5/05		0	1	2	2	2	7
	5/06-5/10	1	1	1	1	0	4
5/11-5/12		0	2	3	2	1	8
	5/13-5/15	1	0	3	0	0	4
Season		32	19	286	91	33	461

Table 11. Chronological distribution of turkey gobbler harvest (%) by physiographic region in Georgia, 2002.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		6.3	0.0	22.0	14.3	12.1	17.8
	3/25-3/29	9.4	0.0	18.2	8.8	6.1	14.1
3/30-3/31		3.1	0.0	8.7	13.2	9.1	8.9
	4/01-4/05	9.4	0.0	9.1	8.8	12.1	8.9
4/06-4/07		0.0	5.3	9.1	11.0	6.1	8.5
	4/08-4/12	12.5	0.0	9.8	8.8	9.1	9.3
4/13-4/14		9.4	0.0	8.4	6.6	6.1	7.6
	4/15-4/19	15.6	4.2	4.2	9.9	12.1	8.2
4/20-4/21		15.6	15.8	2.4	7.7	9.1	5.4
	4/22-4/26	3.1	0.0	2.8	4.4	3.0	3.0
4/27-4/28		6.3	10.5	1.0	1.1	0.0	1.7
	4/29-5/03	3.1	5.3	1.0	0.0	6.1	1.5
5/04-5/05		0.0	5.3	0.7	2.2	6.1	1.5
	5/06-5/10	3.1	5.3	0.3	1.1	0.0	0.9
5/11-5/12		0.0	10.5	1.0	2.2	3.0	1.7
	5/13-5/15	3.1	0.0	1.0	0.0	1.5	0.9

Table 12. Chronological distribution of turkey hunting trips by physiographic region in Georgia, 2002.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		32	21	301	69	42	465
	3/25-3/29	28	14	269	58	39	408
3/30-3/31		30	16	212	70	41	369
	4/01-4/05	37	10	202	55	50	354
4/06-4/07		36	12	186	72	36	342
	4/08-4/12	14	13	161	64	36	288
4/13-4/14		27	15	147	68	44	301
	4/15-4/19	22	4	163	68	28	285
4/20-4/21		24	8	95	74	22	223
	4/22-4/26	13	9	41	36	18	117
4/27-4/28		8	14	40	24	29	115
	4/29-5/03	12	19	36	22	14	103
5/04-5/05		6	22	36	41	33	138
	5/06-5/10	9	20	20	32	31	112
5/11-5/12		10	24	31	45	40	150
	5/13-5/15	9	30	27	49	21	136
Season		317	251	1,967	847	524	3,906

Table 13. Chronological distribution of turkey hunting trips (%) by physiographic region in Georgia, 2002.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		10.1	8.4	15.3	8.1	8.0	11.9
	3/25-3/29	8.8	5.6	13.7	6.8	7.4	10.4
3/30-3/31		9.5	6.4	10.8	8.3	7.8	9.4
	4/01-4/05	11.7	4.0	10.3	6.5	9.5	9.0
4/06-4/07		11.4	4.8	9.5	8.5	6.9	8.8
	4/08-4/12	4.4	5.2	8.2	7.6	6.9	7.4
4/13-4/14		8.5	6.0	7.5	8.0	8.4	7.7
	4/15-4/19	6.9	1.6	8.3	8.0	5.3	7.3
4/20-4/21		7.6	3.2	4.8	8.7	4.2	5.7
	4/22-4/26	4.1	3.6	2.1	4.3	3.4	3.0
4/27-4/28		2.5	5.6	2.0	2.8	5.5	2.9
	4/29-5/03	3.8	7.6	1.8	2.6	2.7	2.6
5/04-5/05		1.9	8.8	1.8	4.8	6.3	3.5
	5/06-5/10	2.8	8.0	1.0	3.8	5.9	2.9
5/11-5/12		3.2	9.6	1.6	5.3	7.6	3.8
	5/13-5/15	2.8	12.0	1.4	5.8	4.0	3.5