

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

LONG RANGE PERFORMANCE REPORT

Grant Title: State Funded Wildlife Survey

Period Covered: July 1, 1995 - June 30, 1996

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 per observer, for 1995 was 54 % higher than the 1994 index. In addition, the population index, hours hunted by cooperators per turkey seen, for 1996 was 29 % lower than in 1995. An inverse correlation coefficient of $r=-.84$ is obtained between the annual production and population indices for the entire survey period which began in 1978.

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 1996 survey period is not complete.

Cooperators involved in data collection for this survey were field personnel of the Game 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. Broods were visually aged on the basis of plumage and size when possible. Observation data record forms and a field observation key for estimating the age of poults were provided to all participating personnel. The average number of poults 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 Wildlife Resources Division 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 asked for but it 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, 1996.

Job B. Planned dates and dates of accomplishment coincide, June 30, 1996.

C. Significant Deviations:

Job A. None

Job B. None

D. Finds:

Job A. In 1995, 408 broods were observed (Table 1). This total is the highest since 1990. The average brood size of 10.4 poults is a new survey high and is 11 % larger than the 1994 average of 9.4 poults.

The production index of 31.75 poults per observer is 54 % greater than that for 1994 and by far is the highest index since the survey began (Table 3). The production index for each physiographic region was also greater than for 1994 with particularly strong increases in the Valley and Ridge - Lookout Mountain Plateau, Piedmont Plateau, and Lower Coastal Plain Plateau.

The number of hens reported totaled 990 (Table 4). This total can be misleading as an indicator due to variations in the number observers. The percent of hens accompanied by poults, 61 %, is up 5 percentage points compared to the previous two years (Table 5). The number of poults per hen averaged 4.3, which is 20 % higher than the 1994 average of 3.6.

Usable hunt data was supplied by 454 cooperators. These cooperators reported spending a total of 18,775 hours hunting (Table 6). The average season hunter effort was 11.7 trips totaling 41.4 hours. They reported observing 12,240 turkeys and hearing 7,473 gobblers. The statewide population index of 1.5 was 29 % lower than that for 1995. The effort per gobbler heard of 2.5 hours was 9 % higher than the 2.3 hours for the 1995 season. The least hunting per turkey seen again occurred in the Valley & Ridge - Lookout Mountain Plateau region. The greatest effort per bird seen was in the Blue Ridge Mountains. As in 1995, effort per gobbler heard was least in the Upper Coastal Plain and highest in the Blue Ridge Mountains.

Peak gobbling activity, 2.0 gobblers per trip, occurred opening weekend, March 23-24 and the second weekend of the season, March 30-31 (Table 8). Compared to 1995, the number of gobblers heard per hunting trip was slightly lower through the third weekend, April 6-7, but equal to or higher than 1995 levels over the remainder of the season.

The statewide gobbler harvest during the first seven days of the season amounted to 28.7 % of the total season harvest down considerably from 1995's survey high of 38.6 (Table 9). Peak harvest was during opening weekend for the Valley and Ridge-Lookout Mountain Plateau, Piedmont Plateau, and Lower Coastal Plain physiographic regions (Table 10). During the third week of the season (April 8-12), peak harvest occurred in the Blue Ridge Mountain region, and a second peak in harvest was seen in the Valley and Ridge-Lookout Mountain region equaling the opening weekend's total. Peak harvest occurred during the first week (March 25-29) in the Upper Coastal Plain region.

Hunter again equaled last year's survey high of 70 % with 317 of 454 hunters taking at least one gobbler. Of these, 118 (37 %) hunters took one bird, 94 (30 %) took two birds and 78 (25 %) took three birds. Twenty-seven (27) hunters (9 %) reported taking or participated in taking more than three birds.

As for previous seasons, the greatest number of trips was made during the first seven days of the season, 1,161 (22 %) of the season total of 5,286 trips (Tables 12 & 13). Only minor variations in hunting effort measures have occurred over the seasons surveyed.

A relatively high inverse correlation, $r=-.84$, continues to be indicated between the production index, poults per observer, and the population index, hours of hunting per turkey observed. This r-value is equivalent to last year's correlation coefficient.

Prior to inclusion of the 1994 production and 1995 population indices, the correlation was higher, $r=-.89$. With a 1995 production index of 31.78, the predicted 1996 population index is 1.19. The actual index from hunter observations is 1.5.

Table 1. Statewide data summary of broods and poults observed, 1978-1995.

Year	Broods		Poult		Est. Total
	Total	Poult Counts	Brood 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

Table 2. Summary of turkey brood observations by physiographic region and month in 1995.

Month	Region*					Total
	I	II	III	IV	V	
June	14	7	24	21	11	79
July	36	3	49	18	21	142
August	19	8	71	28	25	187
Totals	69	18	144	66	37	408

*Numerical designations: I - Valley & Ridge - Lookout Mountains
 II - Blue Ridge Mountains
 III - Piedmont Plateau
 IV- Upper Coastal Plain
 V- Lower Coastal Plain

Table 3. Summary of the average number of poult seen per observer, production index, for 1978-95.

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
I	66.3
II	22.06
III	48.99
IV	21.0
V	14.83
Statewide	31.78

Table 4. Summary of hens reported with poults, without poults, and uncertain of accompanying poults, 1978-94 data.

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

Table 5. Summary of the percent of hens accompanied by poults (2nd potential population index) and the average poults per hen, 1978-95 data.

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

Table 6. Summary of hunt data for 1996 season.

Item	Physiographic Region					Statewide
	I	II	III	IV	V	
Total Hunters	64	45	299	140	54	454
Total Hours	1,876	818	10,287	3,906	1,693	18,775
Total Trips	523	241	2,743	1,197	551	5,302
Avg. Hours	29.3	18.2	34.4	27.9	31.4	41.4
Avg. Trips	8.2	5.4	9.2	8.6	10.2	11.7
Avg. Hrs./Trip	3.6	3.4	3.7	3.2	3.1	3.5
Total Turkeys Seen	1,567	447	6,532	2,404	1,155	12,240
Hrs./Turkeys Seen	1.2	1.8	1.6	1.6	1.5	1.5
Total Gobblers Heard	563	232	3,827	1,977	818	7,473
Hrs./Gobbler Heard	3.3	3.5	2.7	2.0	2.1	2.5
Total Kill	65	24	351	151	65	665
Companion Killed	3	0	27	18	4	52
Hours/Kill	28.9	34.1	29.3	25.9	26.0	26.8

Table 7. Summary of hunt data for 1979-1996 seasons.

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	
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	
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

Table 7. Continued.

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

Table 8. Summary of gobblers heard per hunting trip during 1996 season.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		1.1	0.1	2.0	2.5	2.5	2.0
	3/25-3/29	0.7	0.5	1.1	1.8	1.6	1.3
3/30-3/31		1.2	1.2	1.7	2.2	1.3	1.7
	4/01-4/05	0.8	0.4	1.3	1.8	1.6	1.4
4/06-4/07		1.3	1.4	1.2	1.5	1.3	1.3
	4/08-4/12	1.1	1.0	1.3	1.5	1.8	1.4
4/13-4/14		1.4	1.4	1.6	1.5	1.5	1.5
	4/15-4/19	1.2	1.0	1.1	1.6	1.2	1.3
4/20-4/21		1.3	1.2	1.5	1.4	1.6	1.5
	4/22-4/26	0.7	1.3	1.3	1.2	0.8	1.2
4/27-4/28		1.6	0.6	1.4	1.1	1.2	1.3
	4/29-5/03	1.3	1.1	1.2	1.2	0.9	1.2
5/04-5/05		1.2	1.3	1.5	0.9	1.0	1.3
	5/06-5/10	1.3	1.2	1.0	1.2	1.1	1.1
5/11-5/12		0.9	0.8	1.0	0.5	0.8	0.9
	5/13-5/15	0.6	0.5	1.0	1.2	0.5	0.9
Season		1.1	1.0	1.4	1.7	1.5	1.4

Table 9. A summary of gobbler harvest by date of kill during 1996 season.

Date		Gobblers	% of Season Kill	
Weekend	Weekday	Killed	Date	Cumulative
3/23-3/24		120	18.0	18.0
	3/25-3/29	71	10.7	28.7
3/30-3/31		47	7.1	35.8
	4/01-4/05	63	9.5	45.3
4/06-4/07		21	3.2	48.4
	4/08-4/12	60	9.0	57.4
4/13-4/14		43	6.5	63.9
	4/15-4/19	30	4.5	68.4
4/20-4/21		45	6.8	75.2
	4/22-4/26	39	5.9	81.1
4/27-4/28		27	4.1	85.1
	4/29-5/03	24	3.6	88.7
5/04-5/05		25	3.8	92.5
	5/06-5/10	20	3.0	95.5
5/11-5/12		13	2.0	97.4
	5/13-5/15	17	2.6	100.1
Total		665	100.1	100.1

Table 10. Chronological distribution of gobbler harvest during 1996 season.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		10	1	70	26	12	120
	3/25-3/29	4	0	30	28	9	71
3/30-3/31		0	0	36	5	6	47
	4/01-4/05	4	0	38	14	7	63
4/06-4/07		2	2	9	7	1	21
	4/08-4/12	10	4	25	14	6	60
4/13-4/14		2	4	20	12	3	43
	4/15-4/19	2	1	14	8	4	30
4/20-4/21		2	3	32	7	1	45
	4/22-4/26	7	2	17	5	5	39
4/27-4/28		8	2	8	6	3	27
	4/29-5/03	4	1	11	4	3	24
5/04-5/05		3	1	13	6	2	25
	5/06-5/10	3	1	14	1	1	20
5/11-5/12		2	0	6	4	1	13
	5/13-5/15	2	2	8	4	1	17
Total		65	24	351	151	65	665

Table 11. Chronological distribution of 1996 gobbler harvest (%) by physiographic region.

Date		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		15.4	4.2	19.9	17.2	18.5	18.0
	3/25-3/29	6.2	0.0	8.5	18.5	13.8	10.7
3/30-3/31		0.0	0.0	10.3	3.3	9.2	7.1
	4/01-4/05	6.2	0.0	10.8	9.3	10.8	9.5
4/06-4/07		3.1	8.3	2.6	4.6	1.5	3.2
	4/08-4/12	1.5	16.7	7.1	9.3	9.2	9.0
4/13-4/14		3.1	16.7	5.7	7.9	4.6	6.5
	4/15-4/19	3.1	4.2	4.0	5.3	6.2	4.5
4/20-4/21		3.1	12.5	9.1	4.6	1.5	6.8
	4/22-4/26	10.8	8.3	4.8	3.3	7.7	5.9
4/27-4/28		12.3	8.3	2.3	4.0	4.6	4.1
	4/29-5/03	6.2	4.2	3.1	2.6	4.6	3.6
5/04-5/05		4.6	4.2	3.7	4.0	3.1	3.8
	5/06-5/10	4.6	4.2	4.0	1.0	1.5	3.0
5/11-5/12		3.1	0.0	1.7	2.6	1.5	2.0
	5/13-5/15	3.1	8.3	2.3	2.6	1.5	2.6

Table 12. Distribution of hunting trips during 1996 season

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		50	16	340	134	58	603
	3/25-3/29	50	11	286	140	65	558
3/30-3/31		44	13	187	85	35	366
	4/01-4/05	56	27	314	147	71	617
4/06-4/07		25	8	145	72	37	289
	4/08-4/12	55	20	237	127	61	503
4/13-4/14		30	18	177	81	32	340
	4/15-4/19	29	25	155	79	34	327
4/20-4/21		31	11	166	60	28	298
	4/22-4/26	29	23	145	67	25	296
4/27-4/28		34	14	133	47	22	254
	4/29-5/03	23	13	109	48	25	220
5/04-5/05		19	7	121	27	20	197
	5/06-5/10	19	22	89	34	11	175
5/11-5/12		19	9	68	32	15	143
	5/13-5/15	10	4	55	17	12	100
Total		523	241	2,727	1,197	551	5,286

Table 13. Chronological distribution of hunting trips (%) during 1996 season by physiographic region.

Dates		Physiographic Region					Statewide
Weekend	Weekday	I	II	III	IV	V	
3/23-3/24		9.6	6.6	12.5	11.2	10.5	11.4
	3/25-3/29	9.6	4.6	10.5	11.7	11.8	10.6
3/30-3/31		8.4	5.4	6.9	7.1	6.4	6.9
	4/01-4/05	10.7	11.2	11.5	12.3	12.9	11.7
4/06-4/07		4.8	3.3	5.3	6.0	6.7	5.5
	4/08-4/12	10.5	8.3	8.7	10.6	11.1	9.5
4/13-4/14		5.7	7.5	6.5	6.8	5.8	6.4
	4/15-4/19	5.5	10.4	5.7	6.6	6.2	6.2
4/20-4/21		5.9	4.6	6.1	5.0	5.1	5.6
	4/22-4/26	5.5	9.5	5.3	5.6	4.5	5.6
4/27-4/28		6.5	5.8	4.9	3.9	4.0	4.8
	4/29-5/03	4.4	5.4	4.0	4.0	4.5	4.2
5/04-5/05		3.6	2.9	4.4	2.3	3.6	3.7
	5/06-5/10	3.6	9.1	3.3	2.8	2.0	3.3
5/11-5/12		3.6	3.7	2.5	2.7	2.7	2.7
	5/13-5/15	1.9	1.7	2.0	1.4	2.2	1.9