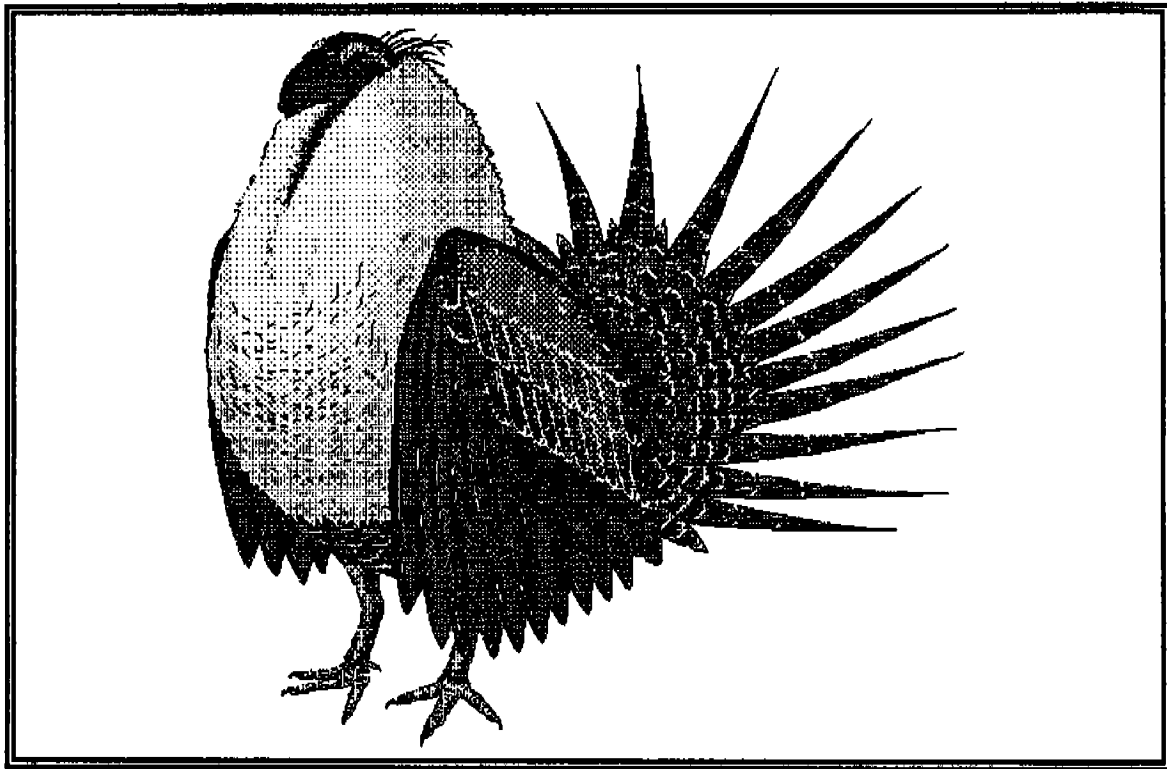


UTAH

UPLAND GAME

ANNUAL REPORT 1993



**UTAH DIVISION OF
WILDLIFE RESOURCES**
DEPARTMENT OF NATURAL RESOURCES
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U T A H
U P L A N D G A M E
Annual Report
1993

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Annual Performance Report for Federal Aid Project W-65-R-40 Job A-4

Utah Department of Natural Resources

DIVISION OF WILDLIFE RESOURCES

An Equal Opportunity Employer

Robert G. Valentine
Director

"FINDING OUT HOW MANY THERE ARE LEFT IS
THE LEAST OF THE PURPOSES OF GAME CENSUS.
MEASURING THE RESPONSE OF GAME POPULATIONS
TO CHANGES - DELIBERATE OR ACCIDENTAL -
IN THEIR ENVIRONMENT IS THE BIG PURPOSE.
CONTINUOUS CENSUS IS THE YARDSTICK OF
SUCCESS OR FAILURE IN CONSERVATION."

ALDO LEOPOLD 1932

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JOB PERFORMANCE REPORT
RESEARCH PROJECT SEGMENT
(Inventory)

State: U T A H Grant Title: Statewide Wildlife
Management Inventory
Project No.: W-65-R Segment No.: 41
Job Title: Statewide Upland Game
Job No.: A-4

Period Covered: October 1, 1992 to September 30, 1993

Abstract: This report includes upland game inventory and harvest data collected during 1992-93. Results of annual inventory and harvest surveys and long-term trends of indices derived by each method are included in the final report. Data obtained in 1993 are compared to 1992 and long-term averages.

Objectives:

1. Conduct efficient breeding and production surveys.
2. Determine annual harvest, hunters, hunter-days and success rates.
3. Inventory critical seasonal habitat.

Procedures: Annual inventory procedures for ring-necked pheasants included winter sex ratio counts and summer roadside counts. The winter sex ratio counts were conducted from December 15, 1992 through February 10, 1993, as snow cover conditions allowed. Indices derived include hen-cock ratios and pheasants observed per 100 hours. Annual summer roadside counts (three or more per route) were conducted from July 22-August 22 on permanently established routes. Indices derived include pheasants per mile, young per mile, young per hen, mean brood and percent of hens with young.

Mourning dove breeding population trend was determined via the annual call count survey. This survey is part of a nationwide survey administered by the U: S. Fish and Wildlife Service. Call counts are conducted over 15 permanent, 20-mile routes. One count was made on each route between May 20-30.

Random brood counts were conducted on chukar and gray partridge, forest grouse (ruffed and blue), sage grouse, sharp-tailed grouse, wild turkey and quail from June 15-August 22. Indices derived for each species include mean brood size, young per 100 adults and birds observed per 100 hours of effort.

Sage grouse strutting ground counts and sharp-tailed grouse dancing ground counts were conducted from March 15-May 15. Total cocks counted, average cocks per ground and percent change from 1992 for comparable grounds were determined on a county basis.

Gambel's quail long-period waterhole counts were completed in July and August. Limited California quail random brood counts were made in several counties.

Cottontail rabbit roadside counts were conducted over pre-established routes between July 15 and August 22. Indices derived include rabbits per mile and young per 100 adults.

Harvest questionnaires were mailed to determine the harvest of upland game birds, cottontail rabbit, and snowshoe hare. A sample of eligible licensees from the current year's (1993) resident small game license file and 1993 combination license file was used. The modified computerized pull-apart mailer was again used to obtain harvest data. Separate questionnaires were mailed to all band-tailed pigeon, white-tailed ptarmigan and wild turkey permittees. Indices derived include total hunters, hunter-days, total harvest and hunter success per day, plus success for each season.

The upland game questionnaires were processed by the Division of Wildlife Resources Wildlife Management Services Section. General upland game questionnaires as well as band-tailed pigeon, wild turkey and white-tailed ptarmigan questionnaires were analyzed by Wildlife Section personnel.

Upland game hunters were checked at checking stations, and random field bag checks were made during each hunting season. Indices derived include bag per hunter (per day), bag per 100 hours, average hours per hunter-day and average hours per bird bagged. Additional sex and age composition data were compiled for some species using wing samples collected at checking stations.

Recommendations: This project should be continued for the purpose of determining trends of upland game populations and harvest statistics in Utah.

INTRODUCTION

The objective of Utah's upland game management program is to provide recreational hunting opportunity for sportsmen within the limits of the annual harvestable surplus for each species. It is based on the knowledge that populations of upland game experience relatively high rates of annual turnover. High reproductive rates are naturally compensated for by high death rates, whether hunting is allowed or not. Annual surveys are conducted to measure the production, trend and harvest of each upland game population.

This is the twenty-third edition of this Annual Upland Game Report. It is an annual performance report of information compiled during inventory and harvest surveys conducted under Federal Aid Project W-65-R, Job A-4. Information contained herein was compiled by conservation officers, biologists, wildlife managers and the upland game management staff of the Utah Division of Wildlife Resources.

This report serves as a handbook of inventory and harvest data. It is designed primarily for the use of those concerned with the management of upland game. A separate section is devoted to each species of upland game in Utah. Data are presented primarily in tabular form with limited narrative comment. The first page of each section provides a brief summary of population status and trend as indicated by inventory and harvest data.

During 1993, a total of 59,590 Utah sportsmen spent 402,968 days afield in pursuit of various upland game species (Table 1). The harvest of upland game totaled 362,611 animals. The proportion of the total upland game hunters which pursued each species is shown in Table 2 and the percentage failing to bag at least one bird (from general mail questionnaire) of each species in Table 3.

In 1993, Utah upland game hunters were again required to purchase an Upland Game Habitat Stamp in order to pursue pheasants, mourning doves, chukar partridge, sage grouse, forest grouse, quail, Hungarian partridge, cottontail rabbit and snowshoe hare. Funds derived from the Upland Game Habitat Stamp will be used to purchase, develop and protect critical upland game habitat throughout Utah.

The regulations for 1993 upland game hunting seasons are shown in Appendix D.



GENERAL HARVEST QUESTIONNAIRE

Harvest statistics were obtained from a random sample of licensed hunters by their response to a hunter questionnaire. The combined upland game bird and rabbit-hare questionnaire was again used.

A total of 16,534 upland game questionnaires, a 16.00 percent sample, were mailed. Of the total, 851 (5.15%) questionnaires were undeliverable. Of the 15,683 questionnaires delivered, 5,442 (34.70%) useable upland game questionnaires were returned. Of those, 2,318 purchased a license but did not hunt upland game. By dividing the total of 103,413 eligible licensees by the usable returns (5,442), a projection factor of 19.002756 is derived.

The 1993 hunter questionnaire sample size increased from 1992, so a follow-up questionnaire was not sent to those who failed to return the first one. A high rate of return is desirable in order to obtain an adequate sample of harvest estimates in counties where hunting pressure and harvest are limited. Extremely small samples from these counties tend to over-estimate the harvest and thus bias the results. Although harvest, number of hunters and days-afield may be over-estimated where small samples are obtained, harvest per hunter-day should be relatively precise.

Table 1. Summary of harvest statistics from the general mail questionnaire for 1993.

Species	Hunters		Total Harvest	Hunter-Days	Bag Per Hunter-Day	Bag Per Hunter For Season
	Afield					
Pheasant	39,640		63,336	141,399	0.45	1.60
Mourning Dove	19,725		170,834	68,143	2.51	8.66
Band-Tailed Pigeon	8	0		13	--	--
Chukar Partridge	10,128		18,774	34,147	0.55	1.85
Sage Grouse	6,594		9,311	14,480	0.64	1.41
Forest Grouse	12,029		18,147	36,390	0.50	1.51
Quail	3,649		11,192	11,952	0.94	3.07
Hungarian Partridge	2,090		2,280	6,194	0.37	1.09
Wild Turkey						
Merriam's	466		74	1,508	0.05	0.16
Rio Grande	41		26	--	5.33	0.63
Sharp-Tailed Grouse	--		--	--	--	--
White-Tailed Ptarmigan	9		13	13	1.00	1.44
Cottontail Rabbit	17,578		64,400	77,968	0.83	3.66
Snowshoe Hare	2,755		4,237	10,774	0.39	1.54
Total	--		362,624	402,981	--	--
Total hunters afield for all species of upland game =					59,590	

Table 2. Number and percent of total upland game hunters afield who reported hunting each species during 1986-93.

Species	Number of Hunters													Percent of Total												
	1986	1987	1988	1989	1990	1991	1992	1993	1986	1987	1988	1989	1990	1991	1992	1993										
Pheasant	59,987	57,118	54,514	50,382	47,025	42,813	41,640	39,640	84.20	83.80	77.70	75.20	72.50	69.14	71.27	66.52										
Mourning Dove	26,583	22,553	22,457	21,696	22,700	22,632	18,021	19,725	13.20	16.50	16.00	16.30	17.30	36.55	30.85	33.10										
Band-Tailed Pigeon*	--	--	11	23	9	15	8	8	--	--	0.01	0.03	0.01	0.02	0.03	0.01										
Chukar	9,397	11,276	11,237	10,910	11,195	10,577	11,125	10,128	37.30	33.00	32.00	32.40	35.00	17.08	19.04	17.00										
Sage Grouse	7,233	7,060	8,499	9,002	9,014	8,018	7,393	6,594	10.20	10.40	12.10	13.40	13.90	12.95	12.65	11.07										
Forest Grouse	12,117	14,831	16,947	16,988	14,591	14,421	15,000	12,029	17.00	21.80	24.20	25.40	22.50	23.29	25.67	20.19										
Quail	2,432	2,549	2,671	3,111	2,614	2,644	2,861	3,649	3.40	3.70	3.80	4.60	4.00	4.27	4.90	6.12										
Hungarian Partridge	1,257	2,010	2,471	2,136	2,305	2,662	3,198	2,090	1.80	2.90	3.50	3.20	3.60	4.30	5.47	3.51										
Wild Turkey*																										
Merriam's	335	347	421	477	531	532	484	466	0.50	0.50	0.60	0.70	0.80	0.86	0.83	0.78										
Rio Grande	--	--	--	--	--	18	20	41	--	--	--	--	--	0.03	0.03	0.07										
Sharp-Tailed Grouse*	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--										
White-Tailed Ptarmigan*	14	9	15	3	11	13	11	9	0.02	0.01	0.02	0.01	0.02	0.02	0.02	0.02										
Cottontail Rabbit	13,992	20,322	24,076	22,878	23,079	21,137	20,509	17,578	19.60	29.80	34.30	34.20	35.60	34.13	35.10	29.50										
Snowshoe Hare	3,277	3,702	4,725	4,895	4,095	3,427	3,732	2,755	4.60	5.40	6.70	7.30	6.30	5.53	6.39	4.62										
Total Hunters**	71,259	68,174	70,142	67,017	64,868	61,922	58,423	59,590																		

*Although wild turkey, sharp-tailed grouse, band-tailed pigeon and white-tailed ptarmigan harvest was determined by separate questionnaires, it is assumed that these hunters are derived from the same group of hunters who reported hunting other upland game bird species.

**This is not the total of the columns because many upland game hunters hunted more than one species.

Table 3. Percent of hunter trips resulting in failure to bag at least one bird, 1961-93.

Year	Phasianid												Mourning Dove			Chukar			Sage Grouse			Forest Grouse			Quail			Hungarian Partridge				
	No Bag		Hunting Trips		%		No Bag		Hunting Trips		%		No Bag		Hunting Trips		%		No Bag		Hunting Trips		%		No Bag		Hunting Trips		%			
	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips	No	Trips		
1961	714	3,204	22	51	583	9	318	539	59	--	--	--	--	--	109	383	28	72	123	59	383	28	72	123	59	383	28	72	123	59		
1962	500	2,685	19	39	456	9	147	362	41	--	--	--	--	--	62	201	31	36	108	33	201	31	36	108	33	201	31	36	108	33		
1963	795	3,317	24	53	691	8	248	550	45	220	468	47	188	281	71	305	23	59	177	33	305	23	59	177	33	305	23	59	177	33		
1964	911	3,115	29	60	681	9	266	568	47	45	154	29	144	229	94	316	30	62	150	41	154	29	144	229	94	316	30	62	150	41		
1965	1,165	4,009	29	--	--	--	486	851	57	82	168	49	225	311	128	371	34	93	233	40	168	49	225	311	128	371	34	93	233	40		
1966	1,242	4,297	29	136	1,067	13	523	881	48	54	131	41	133	331	106	315	34	63	219	29	131	41	133	331	106	315	34	63	219	29		
1967	1,353	4,833	28	153	1,319	12	477	915	52	138	266	52	194	475	161	424	38	116	315	37	138	266	52	194	475	161	424	38	116	315	37	
1968	1,422	5,223	27	236	1,312	18	495	1,095	45	185	449	41	177	665	171	457	39	132	347	28	185	449	41	177	665	171	457	39	132	347	28	
1969	1,897	5,335	36	214	1,568	14	647	1,250	62	241	648	37	273	656	182	465	39	148	292	51	241	648	37	273	656	182	465	39	148	292	51	
1970	1,546	4,686	33	193	1,274	15	466	962	48	257	603	43	209	666	126	314	40	101	210	48	257	603	43	209	666	126	314	40	101	210	48	
1971	1,783	5,049	35	210	1,333	16	464	934	50	234	625	37	223	673	162	385	42	87	210	41	234	625	37	223	673	162	385	42	87	210	41	
1972	1,743	4,617	38	270	1,421	19	457	827	55	259	593	44	271	794	154	339	45	120	224	54	259	593	44	271	794	154	339	45	120	224	54	
1973	1,659	4,699	35	209	1,596	13	414	824	50	226	553	41	329	1,019	128	311	41	97	196	49	226	553	41	329	1,019	128	311	41	97	196	49	
1974	2,347	5,323	44	323	1,951	17	511	955	54	292	668	44	388	1,259	177	333	47	108	227	48	292	668	44	388	1,259	177	333	47	108	227	48	
1975	2,472	5,604	44	329	2,554	13	607	1,105	55	374	901	42	535	1,354	105	406	44	121	220	55	374	901	42	535	1,354	105	406	44	121	220	55	
1976	1,739	4,294	40	273	1,709	16	408	781	52	259	783	33	371	1,131	105	266	39	87	184	47	259	783	33	371	1,131	105	266	39	87	184	47	
1977	1,874	5,175	36	295	1,967	15	511	943	54	394	972	41	528	1,388	125	299	42	106	247	43	394	972	41	528	1,388	125	299	42	106	247	43	
1978	1,507	4,858	31	279	1,986	14	343	882	39	301	853	35	419	1,419	103	306	34	85	246	35	301	853	35	419	1,419	103	306	34	85	246	35	
1979	2,222	7,024	32	343	2,671	13	528	1,150	46	400	1,215	33	585	1,691	130	403	32	119	243	49	400	1,215	33	585	1,691	130	403	32	119	243	49	
1980	1,684	5,867	29	258	2,145	12	458	1,008	45	392	944	42	501	1,283	87	254	34	75	206	36	392	944	42	501	1,283	87	254	34	75	206	36	
1981	1,305	4,637	28	239	1,558	15	302	669	45	184	493	37	297	741	97	241	40	57	172	33	184	493	37	297	741	97	241	40	57	172	33	
1982	1,768	6,725	26	363	2,338	16	406	824	49	269	620	43	325	919	128	292	44	89	176	51	269	620	43	325	919	128	292	44	89	176	51	
1983	1,645	7,153	23	348	2,381	15	362	880	41	294	729	40	300	1,118	105	310	34	82	225	36	294	729	40	300	1,118	105	310	34	82	225	36	
1984	1,245	4,643	27	274	1,711	16	287	548	52	202	435	46	270	640	84	189	44	51	76	67	202	435	46	270	640	84	189	44	51	76	67	
1985	1,207	4,017	30	221	1,500	15	208	426	49	161	376	43	228	656	61	148	41	35	54	65	1,207	4,017	30	221	1,500	15	208	426	49	161	376	43
1986	1,211	3,615	33	224	1,476	15	237	537	44	139	368	38	221	667	58	125	46	36	61	59	1,211	3,615	33	224	1,476	15	237	537	44	139	368	38
1987	863	2,837	30	140	1,047	13	194	537	36	90	307	29	143	671	46	111	41	34	94	35	863	2,837	30	140	1,047	13	194	537	36	90	307	29
1988	1,372	3,953	35	244	1,525	16	308	77	40	187	557	34	224	1,184	63	171	37	73	154	47	1,372	3,953	35	244	1,525	16	308	77	40	187	557	34
1989	1,126	2,985	38	184	1,184	16	263	614	43	183	468	39	257	961	68	160	43	53	108	49	1,126	2,985	38	184	1,184	16	263	614	43	183	468	39
1990	988	2,745	36	161	1,234	13	282	632	45	162	483	34	233	810	54	132	41	46	117	39	988	2,745	36	161	1,234	13	282	632	45	162	483	34
1991	1,062	2,461	43	205	1,301	16	309	608	51	198	461	43	262	829	69	152	45	67	153	44	1,062	2,461	43	205	1,301	16	309	608	51	198	461	43
1992	905	2,760	33	156	1,150	14	298	701	43	169	432	39	208	969	68	168	40	67	186	36	905	2,760	33	156	1,150	14	298	701	43	169	432	39
1993	1,035	2,086	50	194	1,038	19	354	533	66	191	347	55	346	633	85	192	44	75	110	68	1,035	2,086	50	194	1,038	19	354	533	66	191	347	55
AVERAGES (1961-92)			32			14			48			40			37			39		44			37			40			37			44

The upland game questionnaire is designed to monitor statewide harvest trend from year to year. The more extensively a species is hunted, the more accurately the questionnaire measures the trend data. In an effort to improve the accuracy of indices for species which receive very little hunting pressure and harvest, and which have low densities and limited distribution, a unique questionnaire for that species is mailed to the permit holder. This method has been used for band-tailed pigeon, wild turkey, sharp-tailed grouse and white-tailed ptarmigan.

The annual harvest report is sometimes criticized for being inaccurate and without value. However, report users must recognize that the accuracy of the questionnaire is based on some basic assumptions. These assumptions are: (1) the returned useable sample is a completely random sample, (2) respondents recorded data correctly, i.e., they clearly understood the questionnaire, (3) respondents recorded data accurately, did not guess or lie, and (4) respondents correctly identified species hunted. If these assumptions are not met, projections of harvest by county may be over-estimated due to nonrespondent or memory biases. Extreme caution should be used in the interpretation of estimated harvest and hunters for specific species in specific counties. Rather, the long-term trend in these indices should be used in managing the populations.

Presently, the Upland Game Annual Report contains the best data available and therefore constitutes the basic facts of upland game management. Although this report has its limitations, the trend data is valuable in making professional judgments regarding upland game populations and harvest.

The annual report is used in wildlife planning. It can be used to establish relative importance among species and for developing new resources through transplants or habitat developments. It points out areas of needed research by indicating problems and possible causes. It documents population trends and it combines all this inventory information into one easily accessible publication. Thus it is used extensively by federal land management agencies in environmental impact statements and management plans. It will become increasingly more important in developing management plans and assessing impacts on wildlife habitat.

RING-NECKED PHEASANT

SUMMARY

The 1992-93 winter was severe with below normal temperatures (November-February) and extreme snowpack (November-March). Because the most limiting factor for pheasants in Utah is significant winter cover adjacent to winter food sources, survival of pheasant brood stock was marginal.

Weather conditions during the nesting season were unfavorable in 1993. Statewide monthly average temperatures were at or below normal (May-July). Average precipitation was above normal across several climatic subdivisions (May-June). Pheasants observed on roadside routes was below 1992, but hens appeared to have more young.

Harvest statistics compiled from the questionnaire indicated a decrease in success compared to 1992. Harvest decreased 24 percent from 1992, and remained 70 percent below the long-term average. Opening weekend success was down compared to the previous year based upon field bag check data.

Utah's pheasant population continues to decline steadily due to losses of critical habitat and degradation of remaining habitat. In 1992, the Utah legislature authorized an Upland Game Habitat Stamp. Seventy-two percent of the funds generated by the stamp are to be used on pheasant habitat projects.



Winter Sex Ratio Counts

Results of the survey for the winter of 1992-93 and long-term trends are shown in Tables 1, 2 and Figure 1 of this section. Statewide comparisons to the winter of 1991-92 and the 10-year (1983-92) average are as follows:

	<u>Winter of</u> <u>1992-93</u>	<u>Percent change from</u>	
		<u>1991-92</u>	<u>Average</u>
Total pheasants counted (roadside)	508	-43	-76
Hens per cock	2.28	+6	-31
Pheasants observed per 100 hours	1,864	+44	+47
Total hours effort (roadside)	27	-64	-83

Winter sex ratio counts indicated a 44 percent increase in pheasants observed per unit of effort. However, density estimates can be biased due to the non-random nature of the survey technique if effort is minimal as in 1993. The hen-cock ratio increased 6 percent from 1992, but was 31 percent below the long-term average. Effort to collect winter sex ratio data decreased 64 percent from 1992. No effort was expended in the Southeastern Region.

Roadside Counts

A summary of summer roadside pheasant counts for 1993 is shown in Table 3. Long-term trends of pheasants per mile, young per mile, young per hen, percent of hens with young and mean brood size are found in Tables 4-8 and Figure 2. Summer 1993 survey results compared to 1992 and the previous 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total pheasants observed	523	-57	-68
Total miles driven	1,306	-19	-31
Pheasants per mile	0.40	-47	-52
Average brood size	5.81	+48	+17
Young per hen	4.31	+27	+12
Percent of hens with young	85	0	+12

Total pheasants observed decreased 57 percent and pheasants per mile decreased 47 percent. Percent of hens with young remained the same while average brood size increased 48 percent.

Harvest

Hunter Questionnaire

Results of the hunter questionnaire for 1993 are shown in Table 9. Long-term trends of pheasants bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 10-12, and total statewide harvest statistics in Table 13. A comparison of 1993 harvest statistics to 1992 and the previous 45-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Pheasant hunters	39,640	-5	-49
Pheasants harvested	63,336	-26	-70
Hunter-days afield	141,399	-6	-34
Pheasants per hunter-day	0.45	-21	-52
Pheasants per hunter	1.60	-22	-39

Total hunters decreased (5 percent) from 1992 and remained 49 percent below the long-term (1948-92) average. Total harvest decreased 29 percent from 1992. Hunter success (pheasants per hunter-day) decreased 21 percent from 1992. Pheasants per hunter decreased (22 percent) and remains 39 percent below the long-term average.

Long-term trends (1948-93) of total hunters, hunter-days, harvest and hunter success are shown in Figures 3 and 4. Generally, the recent trend is toward less hunter-days with declines in total pheasants harvested and hunter success. We believe this is the result of the accumulated effects of loss of quantity and quality of habitat due to urbanization, flooding, modern agricultural practices, and habitat fragmentation resulting in increased predation.

FIGURE 1. PHEASANT WINTER SEX RATIO INDICES, 1965-93.

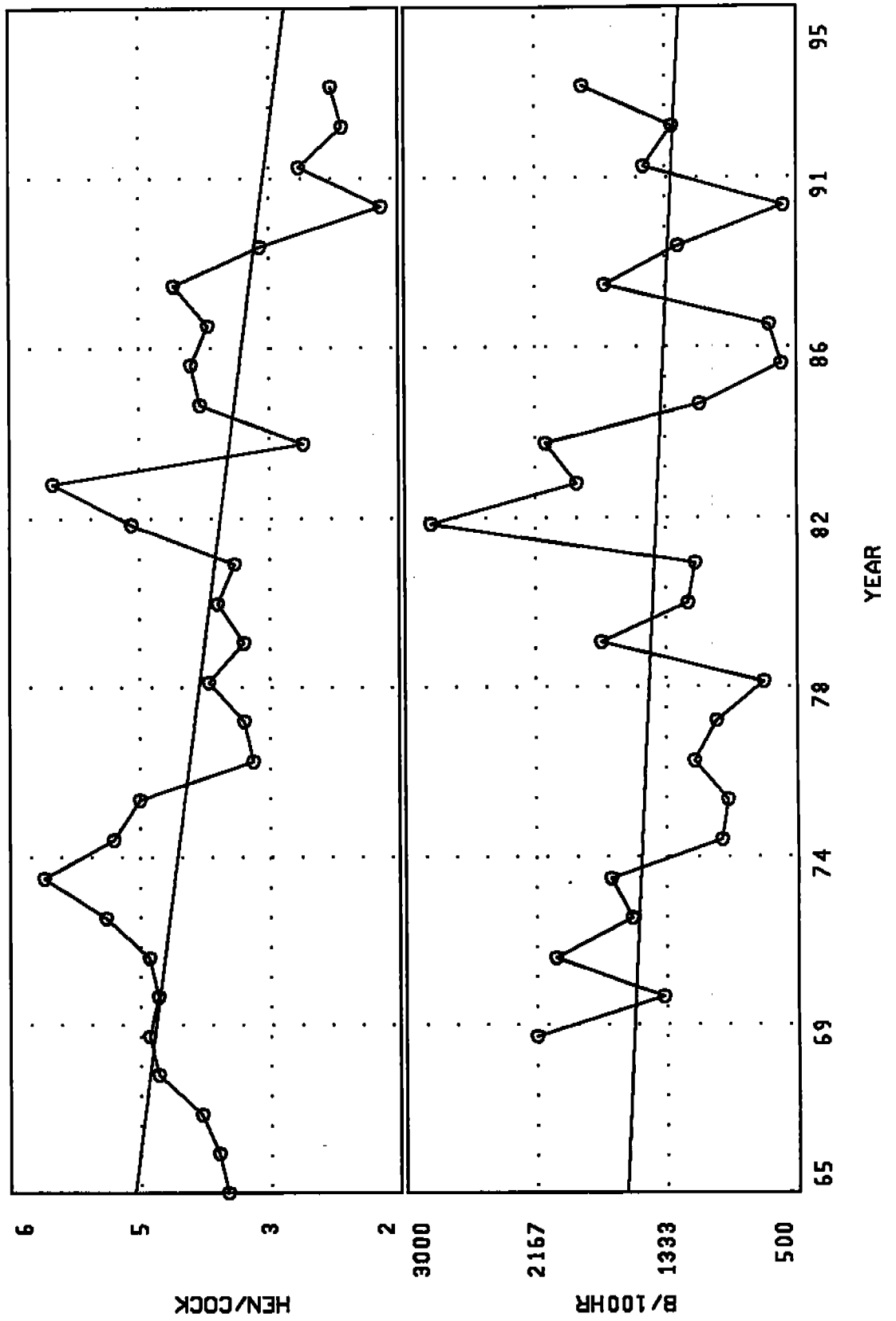
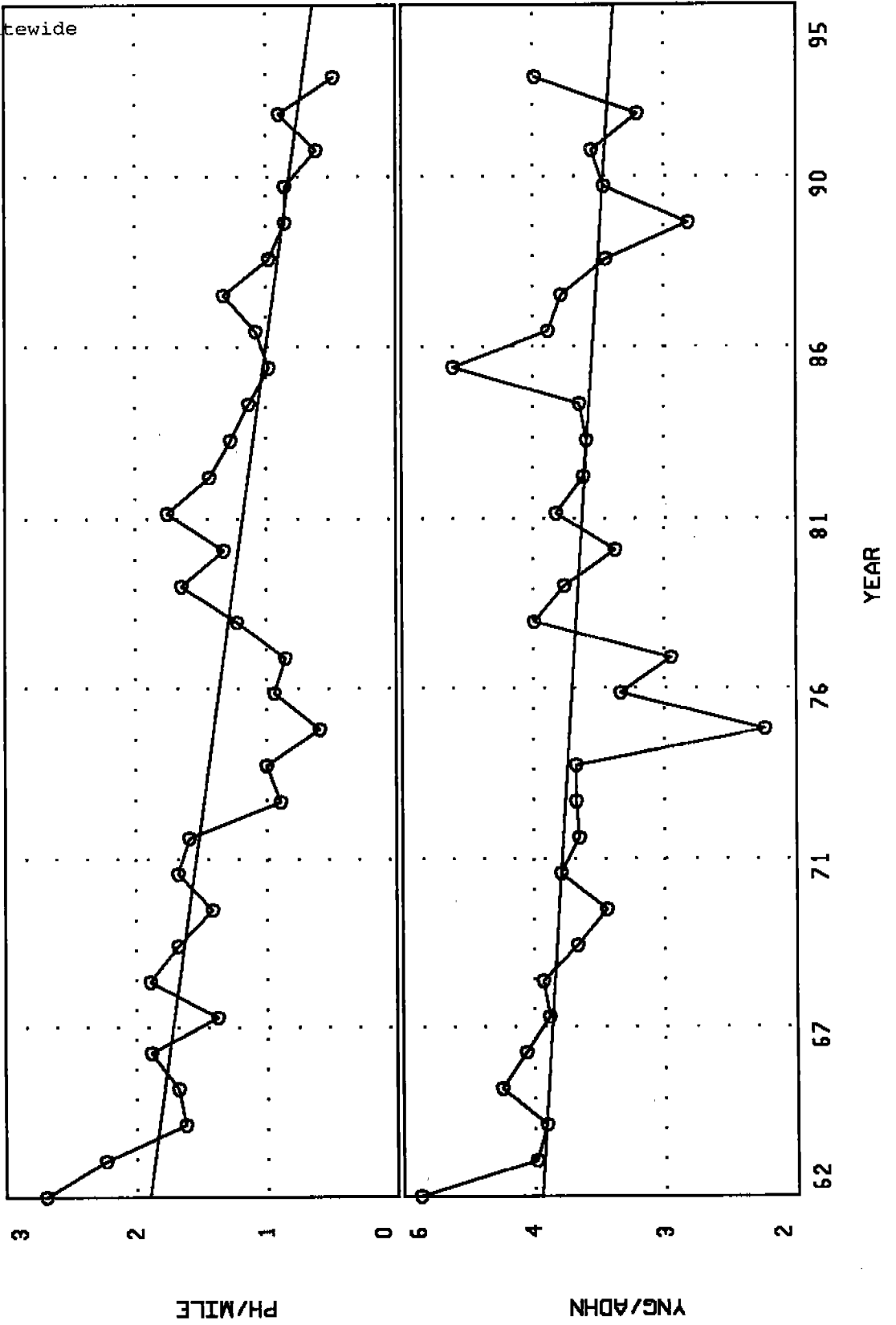


figure 3 statewide

FIGURE2. PHEASANT PRODUCTION INDICES, 1962-93.



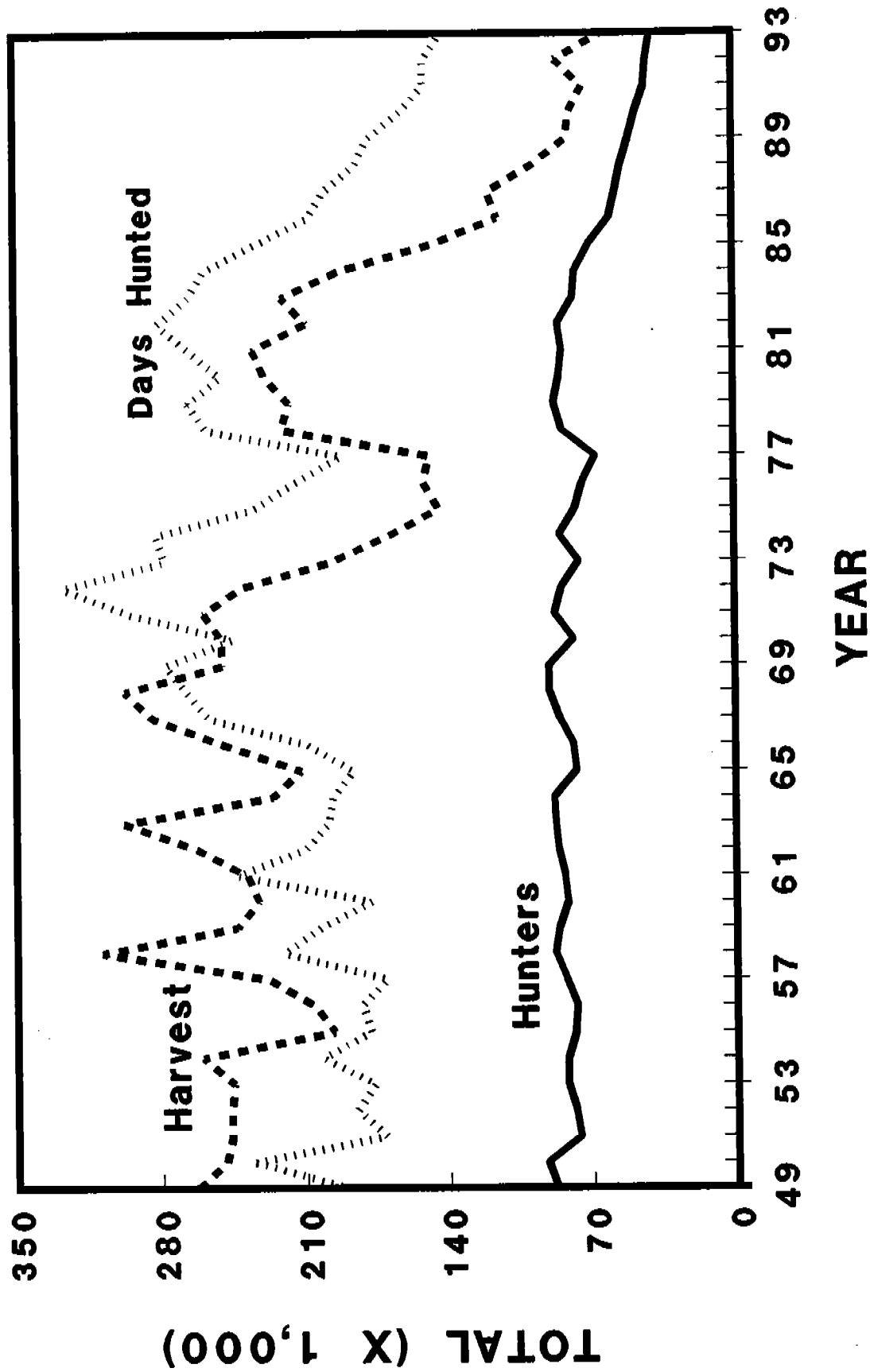


Figure 3. Statewide trends of pheasant harvest statistics, 1949-93.

PHEASANTS PER HUNTER AND PER DAY

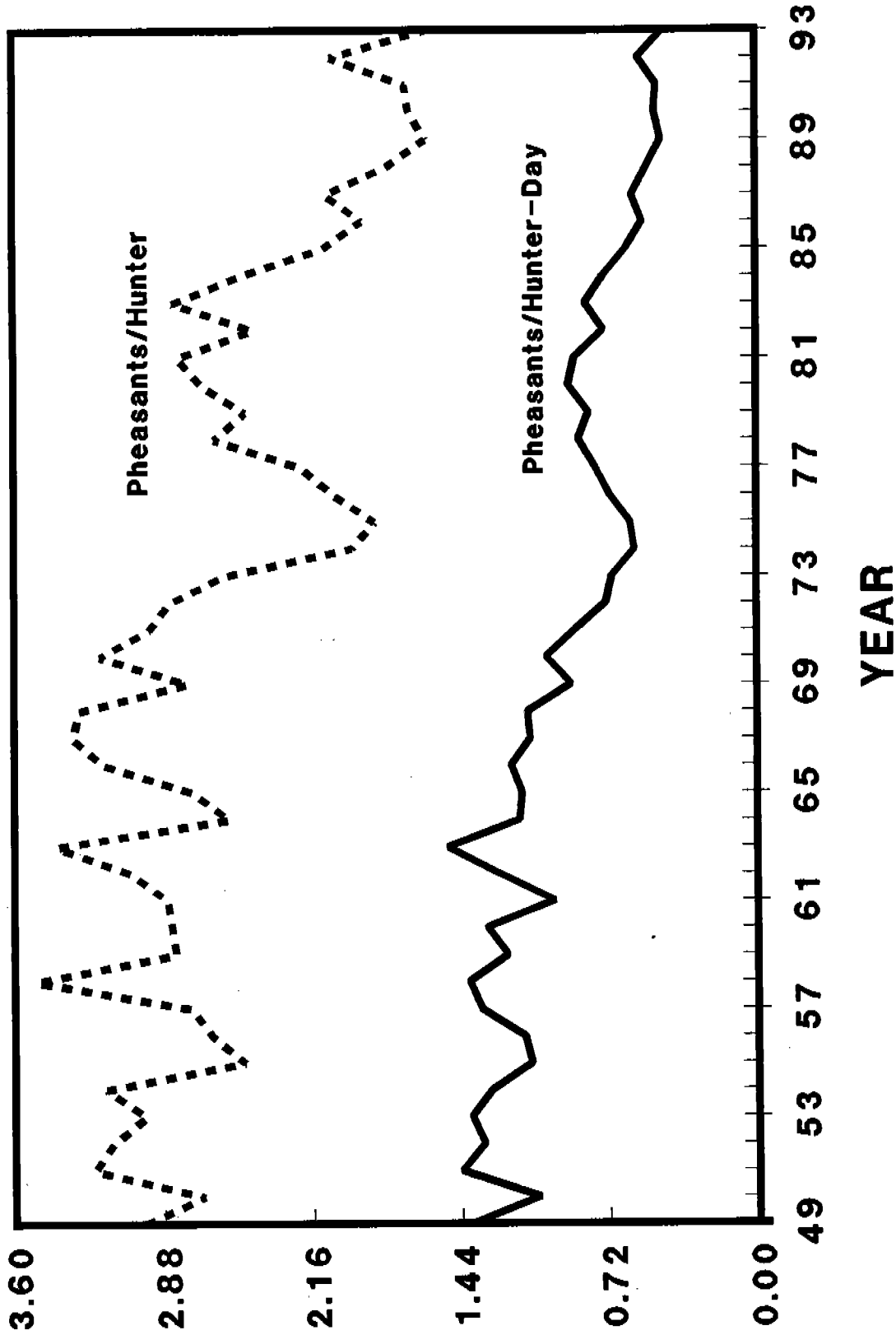
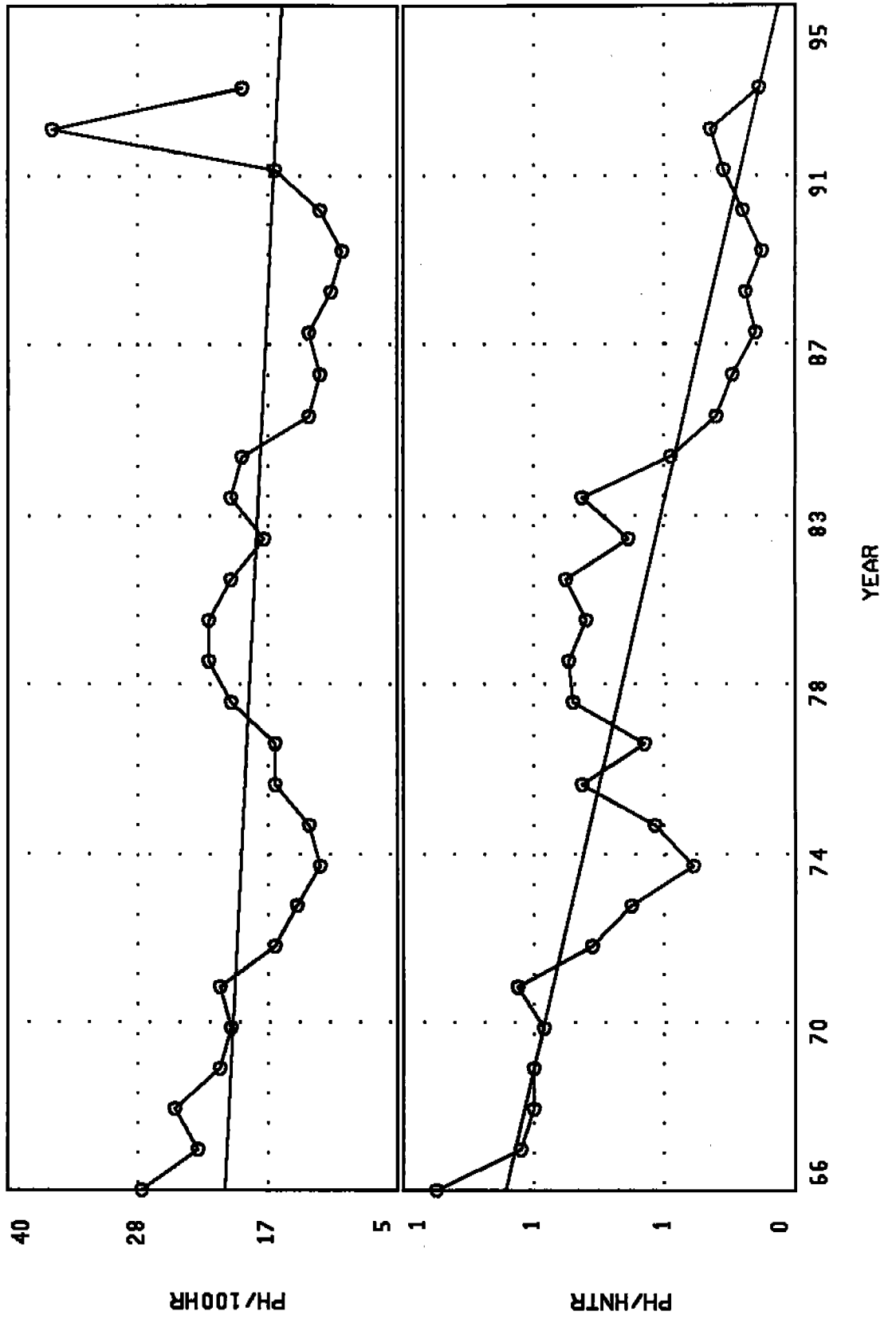


Figure 4. Statewide trends of pheasant hunter success rates, 1949-93.

FIGURES. PHEASANT FIELD BAG CHECK INDICES, 1966-93.



Field Bag Checks

A summary of pheasant field bag check data for 1993 is shown in Table 14. The hunter success trend determined via bag checks since 1988 is found in Table 15 and Figure 5. A comparison of 1993 data, on a statewide basis, to 1992 and the previous 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total hunters checked	417	-5	-83
Total hours hunted	698	+25	-90
Pheasants per hunter (complete hunts)	0.31	-33	-31
Pheasants bagged per 100 hours	19	-47	+18
Average hours per hunter-day (complete hunts)	1.67	+31	-44
Hours hunted per pheasant bagged (complete hunts)	5.37	+95	-24

Hunting pressure was down slightly in most of Utah. This is attributed to decreasing pheasant populations and to less land being accessible to hunters.

In 1992, hunters spent 31 percent more time afield on an average day. Hours hunted per pheasant bagged increased 95 percent.

Table 1. Summary of pheasant winter sex ratio counts, 1992-93.

Region and County	Roadside Observations				Flushing Observations				Effort Expended			Pheas. Obs./	
	Cocks	Hens	Total	Hens/ Cocks/ 100 Hens	Cocks	Hens	Total	Hens/ Cocks/ 100 Hens	Vehicle Miles	Hours of Effort	Vehicle Walk	Total	100 Hours of Road. Obs.
Northern Region													
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	9	21	30	2.33	43	--	--	--	165	9	--	9	333
REGIONAL TOTALS	9	21	30	2.33	43	--	--	--	165	9	--	9	333
Central Region													
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	5	7	12	1.40	71	--	--	--	20	2	--	2	686
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	30	99	129	3.30	30	--	--	--	--	--	--	--	--
Utah	67	122	189	1.82	55	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	102	228	330	2.24	45	--	--	--	20	2	--	2	18,857
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	30	86	116	2.87	35	--	--	--	109	15	--	15	800
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	30	86	116	2.87	35	--	--	--	109	15	--	15	800
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	9	8	17	0.89	113	11	24	35	2.18	46	1	2	3
Uintah	5	10	15	2.00	50	--	--	--	--	--	1	--	1
REGIONAL TOTALS	14	18	32	1.29	78	11	24	35	2.18	46	2	2	4
Southeastern Region													
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	155	353	508	2.28	44	11	24	35	2.18	46	294	27	29
													1,864

Table 2. Trend of pheasant winter sex ratio counts, 1987-93.

Region and County	1987-88		1988-89		1989-90		1990-91		1991-92		1992-93		Average 1986-1992	
	Hens/ Cock	Birds/ 100 Hr	Hens/ Cock	Birds/ 100 Hr	Hens/ Cock	Birds/ 100 Hr	Hens/ Cock	Birds/ 100 Hr	Hens/ Cock	Birds/ 100 Hr	Hens/ Cock	Birds/ 100 Hr		
Northern Region														
Box Elder	4.80	2,409	4.20	3,100	3.60	533	2.47	--	--	--	--	--	--	
Cache	4.30	390	2.70	386	1.30	253	3.43	--	--	--	--	--	--	
Davis	11.30	2,667	7.30	2,014	1.50	143	6.90	1,317	1.38	317	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	4.20	700	3.30	30	3.11	--	4.52	1,055	2.33	333	--	
REGIONAL TOTALS	5.50	925	4.10	833	2.10	321	3.48	4,183	3.66	794	2.33	333	3.77	1,411
Central Region														
Juab	1.80	1,486	2.40	1,100	2.10	1,100	3.56	2,050	--	--	--	--	--	
Salt Lake	2.50	233	--	533	1.30	600	1.73	600	0.25	500	1.40	686	--	
Saunpete	6.40	1,920	--	--	--	--	--	--	4.82	640	--	--	--	
Tooele	--	--	--	--	0.80	2,600	--	--	2.50	2,100	3.30	--	--	
Utah	2.40	2,650	10.00	2,200	2.60	1,016	4.96	1,787	1.99	2,329	1.82	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.00	1,893	3.50	1,344	1.70	1,119	4.22	1,541	2.27	1,706	2.24	18,857	2.94	1,521
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	7.00	4,135	1.60	900	--	2,033	2.21	--	--	--	2.87	800	--	
Plute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	3.90	2,230	12.60	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	5.40	3,105	3.60	2,778	--	2,033	2.21	--	--	--	2.87	800	2.24	1,583
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	1.60	1,400	1.60	1,425	0.80	550	1.75	200	1.21	525	0.89	1,700	--	
Uintah	1.80	1,627	2.50	5,600	1.20	773	1.03	1,600	1.41	1,382	2.00	1,500	--	
REGIONAL TOTALS	1.80	1,556	1.80	1,889	1.10	660	1.12	728	1.37	1,021	1.29	1,600	1.44	1,171
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	
STATE TOTALS	4.10	1,724	3.10	1,251	1.70	582	2.65	1,468	2.15	1,293	2.28	1,864	2.74	1,264

Table 3. Pheasant summer inventory, 1993.

Region and County	No. Routes	Total Miles	Distinct Broods			Mixed Obsr.			Adults w/o Young			Total Hens	Total Young	Total Cocks	Total Pheas./Mile	Young/Mile	Mean Brood Ad. Hen	Young/w/Young	% Hens
			Hens	Young	Total	Hens	Young	Total	Cocks	Hens	Cocks								
Northern Region																			
Box Elder	2	150	5	5	27	3	15	0	1	9	42	0	51	0.34	0.28	5.40	4.67	89	
Cache	1	6	1	1	6	0	0	0	0	1	6	0	7	1.09	0.94	6.00	6.00	100	
Davis	1	92	0	0	0	0	0	1	0	0	0	1	1	0.01	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	4	249	6	6	33	3	15	1	1	10	48	1	59	0.24	0.19	5.50	4.80	90	
Central Region																			
Juab	1	49	1	1	2	3	2	0	0	4	4	0	8	0.16	0.08	2.00	1.00	100	
Salt Lake	1	42	1	1	7	0	3	2	0	1	10	2	13	0.31	0.24	7.00	10.00	100	
Sampete	3	220	9	9	53	2	9	2	2	13	62	2	77	0.35	0.28	5.89	4.77	85	
Tooele	1	57	0	0	0	0	0	0	0	0	0	0	0	--	--	--	--	--	
Utah	3	179	27	27	102	4	22	9	2	33	124	9	166	0.93	0.69	3.78	3.76	94	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	9	547	38	38	164	9	36	13	4	51	200	13	264	0.48	0.37	4.32	3.92	92	
Southern Region																			
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	1	80	0	9	68	0	26	3	2	13	94	3	110	1.38	1.18	--	7.23	85	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	1	80	0	9	68	2	26	3	2	13	94	3	110	1.38	1.18	--	7.23	85	
Northeastern Region																			
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	2	187	2	2	4	--	--	19	2	4	4	19	27	0.14	0.02	2.00	1.00	50	
Uintah	2	153	4	4	19	--	1	--	--	6	20	2	28	0.18	0.13	4.75	3.33	67	
REGIONAL TOTALS	4	340	6	6	23	--	1	19	2	10	24	21	55	0.16	0.07	3.83	2.40	60	
Southeastern Region																			
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Emery	1	90	4	4	26	0	0	2	3	7	26	2	35	0.39	0.29	6.50	3.71	57	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	1	90	4	4	26	0	0	2	3	7	26	2	35	0.39	0.29	6.50	3.71	57	
STATE TOTALS	19	1,306	54	63	314	14	78	38	12	91	392	40	523	0.40	0.30	5.81	4.31	85	

Table 4. Trend of pheasants observed per mile during summer roadside pheasant counts, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	1.43	0.46	0.91	0.44	0.81	0.63	0.19	0.32	0.21	0.56	0.34		
Cache	0.04	0.19	0.03	0.01	0.29	0.13	0.23	0.09	0.41	0.59	1.09		
Davis	1.07	0.34	0.71	1.04	1.30	0.70	0.41	0.48	0.39	0.15	0.01		
Morgan	--	--	--	--	--	--	--	--	--	--	--		
Rich	--	--	--	--	--	--	--	--	--	--	--		
Summit	--	--	--	--	--	--	--	--	--	--	--		
Weber	--	1.56	--	0.86	--	--	0.52	1.26	0.48	1.05	--		
REGIONAL TOTALS	0.63	0.48	0.50	0.43	0.71	0.40	0.30	0.42	0.35	0.58	0.24	0.48	
Central Region													
Juab	0.44	0.77	0.48	0.71	--	0.38	0.50	0.14	--	0.77	0.16		
Salt Lake	1.80	0.46	2.10	1.08	--	--	--	1.26	1.24	--	0.31		
Sanpete	1.74	0.99	1.87	1.15	1.63	1.18	1.70	1.23	0.85	0.67	0.35		
Tooele	--	--	--	0.20	0.08	0.15	--	0.17	0.55	0.14	--		
Utah	1.95	2.21	--	2.13	2.35	2.00	1.00	1.45	0.58	2.56	0.93		
Wasatch	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	1.72	1.49	1.35	1.61	1.79	1.42	1.50	1.09	0.73	1.79	0.48	1.45	
Southern Region													
Beaver	0.23	0.11	0.63	0.23	0.08	0.17	--	--	--	--	--		
Garfield	--	--	--	--	--	--	--	--	--	--	--		
Iron	0.31	--	0.06	0.01	--	--	--	--	--	--	--		
Kane	--	--	--	--	--	--	--	--	--	--	--		
Millard	1.28	1.09	2.27	0.98	0.67	0.67	--	0.34	0.38	--	1.38		
Piute	--	--	--	--	--	--	--	--	--	--	--		
Sevier	1.27	1.52	0.62	1.82	1.95	1.30	--	--	--	--	--		
Washington	1.09	--	0.13	1.30	0.47	0.22	0.06	--	--	--	--		
Wayne	0.26	--	0.39	0.38	--	--	--	--	--	--	--		
REGIONAL TOTALS	0.94	1.09	1.25	1.07	1.44	0.78	0.06	0.34	0.38	--	1.38	0.82	
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--		
Duchesne	0.72	0.68	0.16	0.44	0.38	0.58	0.39	0.93	0.59	0.22	0.14		
Uintah	2.97	1.33	0.35	0.46	0.55	0.45	0.24	0.52	0.29	0.18	0.18		
REGIONAL TOTALS	1.39	0.91	0.22	0.45	0.45	0.54	0.32	0.71	0.51	0.17	0.16	0.57	
Southeastern Region													
Carbon	0.42	--	0.12	0.26	--	--	--	--	--	--	--		
Emery	0.32	0.66	0.83	0.73	0.72	1.06	1.00	0.61	0.28	0.56	0.39		
Grand	1.70	--	--	--	--	--	--	--	--	--	--		
San Juan	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	0.39	0.66	0.59	0.61	0.72	1.06	1.00	0.61	0.28	0.56	0.39	0.65	
STATE TOTALS	1.06	0.94	0.81	0.80	1.10	0.81	0.71	0.71	0.51	0.75	0.40	0.82	

Table 5. Trend of young observed per mile during summer roadside pheasant counts, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	0.63	0.26	0.65	0.29	0.62	0.39	0.16	0.27	0.14	0.41	0.28		
Cache	0.00	0.13	0.02	0.00	0.25	0.09	0.14	0.06	0.23	0.42	0.94		
Davis	0.78	0.16	0.35	0.85	0.98	0.52	0.22	0.31	0.26	0.04	--		
Morgan	--	--	--	--	--	--	--	--	--	--	--		
Rich	--	--	--	--	--	--	--	--	--	--	--		
Sunmit	--	--	--	--	--	--	--	--	--	--	--		
Weber	--	1.27	--	0.76	--	--	0.39	0.97	0.30	0.77	--		
REGIONAL TOTALS	0.35	0.32	0.33	0.32	0.55	0.28	0.20	0.32	0.21	0.41	0.19	0.33	
Central Region													
Jrab	0.36	0.58	0.39	0.57	--	0.17	0.08	0.09	--	0.62	0.08		
Salt Lake	--	1.26	0.31	1.62	0.79	--	--	0.97	0.93	--	0.24		
Sanpete	1.44	0.76	1.54	0.90	1.23	0.96	1.30	0.91	0.67	0.53	0.28		
Tooele	--	--	--	0.08	0.07	0.07	--	0.10	0.53	0.11	--		
Utah	1.34	1.36	--	1.68	1.81	1.57	1.00	1.15	0.49	1.97	0.69		
Wasatch	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	1.31	0.99	1.09	1.26	1.37	1.11	1.10	0.87	0.59	1.38	0.37	1.11	
Southern Region													
Beaver	0.17	0.08	0.51	0.14	0.07	0.10	--	--	--	--	--		
Garfield	--	--	--	--	--	--	--	--	--	--	--		
Iron	0.23	--	0.05	--	0.00	--	--	--	--	--	--		
Kane	--	--	--	--	--	--	--	--	--	--	--		
Millard	1.00	0.89	0.20	0.76	1.55	0.50	--	0.31	0.28	--	1.18		
Piute	--	--	--	--	--	--	--	--	--	--	--		
Sevier	0.94	1.19	1.25	1.48	1.54	0.95	--	--	--	--	--		
Washington	0.68	--	--	0.86	0.22	0.16	--	--	--	--	--		
Wayne	0.12	--	0.28	0.19	--	--	--	--	--	--	--		
REGIONAL TOTALS	0.68	0.86	1.03	0.84	1.12	0.57	--	0.31	0.28	--	1.18	0.71	
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--		
Duchesne	0.55	0.46	0.07	0.29	0.25	0.32	0.20	0.58	0.42	0.08	0.02		
Uintah	2.25	1.12	0.29	0.33	0.40	0.30	0.14	0.35	0.21	0.10	0.13		
REGIONAL TOTALS	1.06	0.69	0.14	0.30	0.31	0.32	0.17	0.46	0.37	0.08	0.07	0.39	
Southeastern Region													
Carbon	0.27	--	0.02	0.15	--	--	--	--	--	--	--		
Emery	0.18	0.45	0.63	0.56	0.59	0.86	1.00	0.43	0.22	0.43	0.29		
Grand	1.10	--	--	--	--	--	--	--	--	--	--		
San Juan	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	0.23	0.45	0.42	0.34	0.59	0.86	1.00	0.43	0.22	0.43	0.29	0.50	
STATE TOTALS	0.73	0.66	0.60	0.61	0.79	0.63	0.62	0.48	0.38	0.55	0.30	0.60	

Table 6. Trend of young per adult bea ratios found during summer roadside pheasant counts, 1983-93.

Region and County	Year											Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Northern Region												
Box Elder	1.41	2.44	3.63	2.38	4.42	2.21	7.00	5.86	1.92	3.04	4.67	
Cache	--	3.40	1.50	--	7.17	2.33	2.60	5.50	1.57	3.38	6.00	
Davis	3.31	1.67	1.26	5.92	3.30	6.86	1.30	2.41	3.00	1.00	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	5.50	--	7.33	--	--	4.80	5.50	2.60	3.35	--	
REGIONAL TOTALS	1.98	3.23	2.60	3.92	4.18	3.44	2.90	3.86	2.02	3.05	4.80	3.12
Central Region												
Juab	6.50	4.20	4.33	4.00	--	2.00	0.23	4.00	--	8.00	1.00	
Salt Lake	--	3.58	3.13	5.10	3.88	--	--	3.80	4.22	--	10.00	
Sanpete	5.85	5.38	6.10	3.98	3.25	4.48	3.20	3.34	4.17	4.60	4.77	
Tooele	--	--	--	1.50	4.00	2.00	--	2.00	--	3.00	--	
Utah	2.51	1.66	--	4.16	4.18	3.94	3.80	4.31	6.41	4.22	3.76	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.69	2.59	5.61	4.18	3.89	4.00	4.70	3.92	5.27	4.28	3.92	4.21
Southern Region												
Beaver	3.75	2.33	5.11	2.60	6.00	1.80	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	5.33	--	3.00	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	6.37	6.24	4.33	4.04	3.99	3.64	--	15.00	4.86	--	7.23	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	3.49	4.64	4.58	5.22	5.14	3.77	--	--	--	--	--	
Washington	2.23	--	--	2.78	1.11	3.50	--	--	--	--	--	
Wayne	3.33	--	3.17	2.43	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.69	5.05	5.92	4.43	4.32	3.61	--	15.00	4.86	--	7.23	5.21
Northeastern Region												
Pageett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	5.03	3.81	3.00	3.73	3.40	2.36	1.68	2.60	3.81	0.86	1.00	
Uintah	5.16	13.00	11.50	4.13	3.65	3.67	2.33	3.30	3.33	1.70	3.33	
REGIONAL TOTALS	5.11	6.38	5.83	3.88	3.52	2.64	2.01	2.82	3.73	1.02	2.40	3.69
Southeastern Region												
Carbon	3.13	--	0.50	3.00	--	--	--	--	--	--	--	
Emery	2.93	3.75	4.17	5.15	6.63	6.42	3.60	3.50	5.00	6.50	3.71	
Grand	5.50	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.21	3.75	3.80	4.04	6.63	6.42	3.60	3.50	5.00	6.50	3.71	4.65
STATE TOTALS	3.85	3.92	5.04	4.20	4.08	3.68	2.95	3.70	3.81	3.40	4.31	3.86

Table 7. Trend of the percent of hens observed with broods during summer roadside pheasant counts, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	52	56	74	48	75	64	100	100	100	83	74	89	
Cache	--	100	50	--	83	50	56	67	67	70	38	100	
Davis	75	33	42	85	89	86	47	50	50	50	0	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	92	--	100	--	--	100	80	60	60	85	--	
REGIONAL TOTALS	57	66	60	62	82	67	76	74	69	67	67	90	68
Central Region													
Juab	100	80	100	100	--	50	6	100	--	--	--	100	
Salt Lake	--	79	63	90	88	--	--	67	89	89	--	100	
Sampete	92	90	92	76	85	88	81	78	83	83	90	85	
Tooele	--	--	--	50	100	50	--	--	--	--	--	--	
Utah	60	63	--	86	94	81	66	89	76	76	86	94	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	71	70	56	84	91	82	51	81	80	80	87	92	75
Southern Region													
Beaver	50	33	89	80	100	40	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	100	--	100	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	94	100	84	98	86	86	--	100	100	100	--	85	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	76	91	88	87	86	69	--	--	--	--	--	--	
Washington	83	--	--	64	22	50	--	--	--	--	--	--	
Wayne	--	--	83	100	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	83	91	85	88	82	74	--	100	100	100	--	85	88
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	82	67	75	73	96	39	61	60	84	84	--	50	
Uintah	75	86	75	73	91	75	56	79	100	100	--	67	
REGIONAL TOTALS	77	72	75	73	94	46	59	67	86	86	--	60	72
Southeastern Region													
Carbon	63	--	50	66	--	--	--	--	--	--	--	--	
Emery	64	65	67	92	100	100	64	64	100	100	83	57	
Grand	--	100	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	67	65	65	91	100	100	64	64	100	100	83	57	80
STATE TOTALS	74	75	62	83	87	72	64	76	79	85	85	85	76

Table 8. Trend of average brood size for pheasants, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993		
Northern Region													
Box Elder	4.00	4.63	5.77	5.33	6.00	4.80	8.00	5.40	3.20	4.00	5.40		
Cache	--	3.40	3.00	--	4.80	4.00	4.00	4.50	5.20	4.67	6.00		
Davis	5.40	3.33	3.50	5.12	4.40	6.60	4.50	4.20	6.00	--	--		
Morgan	--	--	--	--	--	--	--	--	--	--	--		
Rich	--	--	--	--	--	--	--	--	--	--	--		
Summit	--	--	--	--	--	--	--	--	--	--	--		
Weber	--	6.00	6.33	--	5.50	5.40	4.30	--	4.33	3.94	--		
REGIONAL TOTALS	4.58	4.72	5.11	5.41	5.10	5.40	5.40	5.00	4.53	4.03	5.50	4.93	
Central Region													
Juab	6.50	6.00	4.33	4.67	--	4.00	4.00	4.00	--	8.00	2.00		
Salt Lake	4.44	4.75	5.00	5.70	3.80	3.80	--	5.00	4.25	--	7.00		
Sanpete	6.39	6.38	8.28	5.10	4.80	5.80	4.20	4.40	5.00	4.00	5.89		
Tooele	--	--	--	3.00	4.00	4.00	--	3.00	--	--	--		
Utah	4.02	2.95	--	4.75	4.90	4.80	5.10	5.00	5.13	5.44	3.78		
Wasatch	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	5.01	3.75	7.42	4.89	4.80	5.00	4.40	4.70	4.92	5.35	4.32	5.02	
Southern Region													
Beaver	6.50	7.00	5.75	3.25	6.00	4.50	--	--	--	--	--		
Garfield	--	--	--	--	--	--	--	--	--	--	--		
Iron	5.33	--	--	--	--	--	--	--	--	--	--		
Kane	--	--	--	--	--	--	--	--	--	--	--		
Millard	6.40	6.00	40.63	3.72	5.30	4.90	--	3.80	5.40	--	--		
Piute	--	--	--	--	--	--	--	--	--	--	--		
Sevier	5.14	5.10	5.17	5.69	5.80	5.60	--	--	--	--	--		
Washington	3.90	--	--	4.14	5.00	7.00	--	--	--	--	--		
Wayne	--	--	3.33	2.25	--	--	--	--	--	--	--		
REGIONAL TOTALS	5.18	5.42	7.35	4.70	5.60	5.30	--	3.80	5.40	--	--	5.34	
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--		
Duchesne	4.50	5.87	4.00	5.75	3.90	5.30	2.70	5.30	4.50	0.68	2.00		
Uintah	5.11	5.50	6.33	5.71	4.40	5.30	4.20	4.90	3.33	3.00	4.75		
REGIONAL TOTALS	4.87	5.72	4.78	5.74	4.10	5.30	3.50	5.10	4.18	0.80	3.83	4.41	
Southeastern Region													
Carbon	3.00	--	1.00	--	--	--	--	--	--	--	--		
Emery	6.60	5.00	5.20	6.89	5.00	7.10	5.70	5.60	4.50	7.00	6.50		
Grand	5.50	--	--	--	--	--	--	--	--	--	--		
San Juan	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	5.30	5.00	4.82	5.46	5.00	7.10	5.70	5.60	4.50	7.00	6.50	5.55	
STATE TOTALS	5.03	4.78	6.71	4.94	5.10	5.30	4.60	4.80	4.61	3.93	5.81	4.98	

Table 9. Summary of pheasant hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	253	14,138	6,289	0.44	10.00	9.93
CACHE	184	10,679	5,092	0.48	7.55	8.04
DAVIS	140	8,494	1,786	0.21	6.01	2.82
MORGAN	8	209	0	0.00	0.15	0.00
RICH	4	114	38	0.33	0.08	0.06
SUMMIT	1	19	0	0.00	0.01	0.00
WEBER	253	16,038	3,249	0.20	11.34	5.13
REGIONAL TOTALS	843	49,692	16,456	0.33	35.14	25.98
CENTRAL REGION						
JUAB	94	3,401	1,368	0.40	2.41	2.16
SALT LAKE	76	3,325	1,748	0.53	2.35	2.76
SANPETE	139	6,232	2,736	0.44	4.41	4.32
TOOELE	86	3,838	589	0.15	2.71	0.93
UTAH	576	32,038	15,525	0.48	22.66	24.51
WASATCH	4	76	38	0.50	0.05	0.06
REGIONAL TOTALS	975	48,913	22,005	0.45	34.59	34.74
SOUTHERN REGION						
BEAVER	15	1,102	304	0.28	0.78	0.48
GARFIELD	0	0	0	0.00	0.00	0.00
IRON	18	855	247	0.29	0.60	0.39
KANE	0	0	0	0.00	0.00	0.00
MILLARD	180	8,437	4,883	0.58	5.97	7.71
PIUTE	5	152	38	0.25	0.11	0.06
SEVIER	139	8,836	2,869	0.32	6.25	4.53
WASHINGTON	31	1,710	1,596	0.93	1.21	2.52
WAYNE	3	133	38	0.29	0.09	0.06
REGIONAL TOTALS	391	21,226	9,976	0.47	15.01	15.75
NORTHEASTERN REGION						
DAGGETT	3	95	114	1.20	0.07	0.18
DUCHESNE	118	6,993	5,377	0.77	4.95	8.49
UINTAH	77	3,439	1,520	0.44	2.43	2.40
REGIONAL TOTALS	198	10,527	7,012	0.67	7.45	11.07
SOUTHEASTERN REGION						
CARBON	49	2,451	1,387	0.57	1.73	2.19
EMERY	96	6,175	3,230	0.52	4.37	5.10
GRAND	3	133	76	0.57	0.09	0.12
SAN JUAN	3	76	0	0.00	0.05	0.00
REGIONAL TOTALS	151	8,836	4,693	0.53	6.25	7.41
UNKNOWN	25	2,204	3,192	1.45	1.56	5.04
STATE TOTALS	2,583	141,399	63,336	0.45	100.00	100.00

* Total hunter trips from questionnaire returns.

Table 10. Summary of pheasants bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.52	0.62	0.49	0.40	0.58	0.53	0.64	0.44
Cache	0.44	0.52	0.47	0.32	0.46	0.51	0.59	0.48
Davis	0.36	0.43	0.32	0.28	0.26	0.34	0.29	0.21
Morgan	0.18	0.70	1.71	0.40	(0.67)	(0.15)	(0.00)	0.00
Rich	0.00	(1.00)	(0.18)	(0.17)	0.00	0.00	(0.00)	0.33
Summit	0.00	(0.67)	0.00	(0.67)	0.00	(0.05)	(0.00)	0.00
Weber	0.39	0.40	0.34	0.29	0.34	0.37	0.39	0.20
REGIONAL TOTALS	0.42	0.49	0.40	0.32	0.42	0.44	0.50	0.33
<u>Central Region</u>								
Juab	0.64	0.66	0.49	0.38	0.39	0.57	0.66	0.40
Salt Lake	0.40	0.45	0.26	0.32	0.51	0.32	0.39	0.53
Sanpete	0.72	0.73	0.80	0.65	0.57	0.59	0.60	0.44
Tooele	0.44	0.56	0.31	0.29	0.36	0.44	0.24	0.15
Utah	0.64	0.68	0.64	0.58	0.53	0.55	0.65	0.48
Wasatch	(0.17)	(0.32)	(0.60)	(1.33)	0.00	0.68	(0.30)	0.50
REGIONAL TOTALS	0.60	0.65	0.50	0.54	0.51	0.53	0.59	0.45
<u>Southern Region</u>								
Beaver	0.56	0.37	0.41	0.39	0.68	0.55	0.38	0.28
Garfield	0.58	0.14	2.75	0.71	0.00	0.00	(0.00)	0.00
Iron	0.32	0.28	0.23	0.34	0.34	0.29	0.26	0.29
Kane	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	0.00
Millard	0.77	0.68	0.60	0.66	0.74	0.59	0.76	0.58
Piute	0.83	0.67	0.42	1.12	(0.50)	(0.10)	(1.00)	0.25
Sevier	0.68	0.65	0.57	0.45	0.42	0.36	0.49	0.32
Washington	0.40	0.21	0.39	0.33	0.38	0.21	0.61	0.93
Wayne	0.33	0.24	0.63	(0.46)	0.00	(0.50)	(1.14)	0.29
REGIONAL TOTALS	0.67	0.60	0.77	0.52	0.56	0.45	0.62	0.47
<u>Northeastern Region</u>								
Daggett	0.00	(0.50)	(0.20)	0.00	0.00	0.00	(0.00)	1.20
Duchesne	0.84	0.87	0.90	0.62	0.78	0.66	0.79	0.77
Uintah	0.79	0.80	0.64	0.42	0.57	0.47	0.68	0.44
REGIONAL TOTALS	0.81	0.83	0.56	0.53	0.69	0.58	0.74	0.67
<u>Southeastern Region</u>								
Carbon	0.39	0.47	0.51	0.39	0.30	0.22	0.48	0.57
Emery	0.46	0.48	0.68	0.44	0.44	0.50	0.53	0.52
Grand	(0.50)	(0.86)	(0.20)	(0.33)	(0.33)	(0.48)	(1.40)	0.57
San Juan	0.58	1.64	1.50	(2.00)	0.00	(0.36)	(1.00)	0.00
REGIONAL TOTALS	0.44	0.53	0.63	0.43	0.39	0.39	0.53	0.53
Unknown Counties	0.40	0.63	0.54	0.60	0.00	0.00	0.00	1.45
STATE TOTALS	0.55	0.60	0.53	0.46	0.49	0.48	0.57	0.45

() Data may be biased because small sample size inflated county harvest beyond reasonable estimate for known pheasant populations.

Table 11. Percentage distribution of pheasant harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	8.16	9.00	8.30	7.65	12.70	11.67	12.59	9.93
Cache	4.07	4.83	5.09	4.01	7.53	9.68	9.76	8.04
Davis	5.80	6.12	5.48	4.80	3.96	4.38	2.92	2.82
Morgan	0.05	0.14	0.20	0.15	(0.21)	(0.07)	(0.00)	0.00
Rich	0.00	(0.02)	(0.03)	(0.03)	0.00	0.00	(0.00)	0.06
Summit	0.00	(0.04)	0.00	(0.05)	0.00	0.02	(0.00)	0.00
Weber	8.81	5.46	7.42	7.40	8.39	(8.03)	6.59	5.13
REGIONAL TOTALS	26.90	25.63	26.55	24.09	32.79	33.85	31.86	25.98
<u>Central Region</u>								
Juab	2.95	3.47	1.94	1.69	2.09	2.47	3.21	2.16
Salt Lake	4.90	4.48	2.18	2.67	4.30	2.23	2.51	2.76
Sanpete	10.32	9.53	10.63	10.76	7.92	5.94	5.70	4.32
Tooele	2.63	2.79	2.20	2.03	2.19	1.72	1.24	0.93
Utah	22.25	23.70	25.83	27.35	23.44	27.43	28.75	24.51
Wasatch	(0.02)	(0.12)	(0.15)	(0.51)	0.00	0.50	(0.06)	0.06
REGIONAL TOTALS	43.07	44.12	42.96	45.02	39.94	40.30	41.47	34.74
<u>Southern Region</u>								
Beaver	0.65	0.45	0.56	0.36	0.73	0.69	0.31	0.48
Garfield	0.13	0.02	0.18	0.13	0.00	0.00	(0.00)	0.00
Iron	0.47	0.32	0.25	0.62	0.50	0.55	0.21	0.39
Kane	0.00	0.00	0.00	0.00	0.00	0.00	(0.00)	0.00
Millard	8.30	6.29	6.03	7.99	8.71	7.62	8.04	7.71
Piute	0.18	0.24	0.18	0.74	(0.08)	(0.02)	(0.19)	0.06
Sevier	7.42	7.07	6.34	5.75	3.94	3.62	3.83	4.53
Washington	0.61	0.24	0.22	1.05	0.78	0.43	0.46	2.52
Wayne	0.04	0.16	0.08	(0.15)	0.00	(0.02)	(0.17)	0.06
REGIONAL TOTALS	17.80	14.82	13.88	16.80	14.73	12.96	13.19	15.75
<u>Northeastern Region</u>								
Daggett	0.00	(0.08)	(0.05)	0.00	0.00	0.00	(0.00)	0.18
Duchesne	4.11	5.26	6.34	5.86	5.71	5.73	5.97	8.49
Uintah	4.16	4.74	3.91	3.16	3.15	3.07	3.58	2.40
REGIONAL TOTALS	8.27	10.09	10.30	9.01	8.86	8.79	9.55	11.07
<u>Southeastern Region</u>								
Carbon	1.37	1.37	1.48	1.90	0.76	0.84	1.28	2.19
Emery	2.32	3.00	3.93	2.88	2.76	2.92	2.44	5.10
Grand	0.11	0.37	(0.01)	(0.08)	(0.16)	(0.24)	(0.14)	0.12
San Juan	0.13	0.47	0.10	(0.15)	0.00	(0.10)	(0.06)	0.00
REGIONAL TOTALS	3.93	5.22	5.53	5.01	3.68	4.10	3.94	7.41
Unknown Counties	0.04	0.10	0.75	0.08	0.00	0.00	0.00	5.04
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

() Data may be biased because small sample size inflated county harvest beyond reasonable estimate for known pheasant populations.

Table 12. Percentage distribution of pheasant hunting pressure by county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	8.60	8.67	8.91	8.77	10.67	10.66	11.21	10.00
Cache	5.16	5.59	5.69	5.68	7.98	9.18	9.40	7.55
Davis	8.92	8.43	8.95	7.85	7.32	6.31	5.78	6.01
Morgan	0.17	0.12	0.06	0.18	(0.15)	(0.23)	(0.07)	0.15
Rich	0.00	0.01	0.09	(0.07)	(0.01)	(0.02)	(0.00)	0.08
Summit	(0.01)	0.03	0.09	(0.04)	(0.01)	(0.23)	(0.00)	0.01
Weber	12.36	8.19	11.42	11.59	12.13	10.47	9.64	11.34
REGIONAL TOTALS	35.22	31.06	35.24	34.17	38.29	37.10	36.11	35.14
<u>Central Region</u>								
Juab	2.54	3.15	2.11	2.02	2.61	2.11	2.79	2.41
Salt Lake	6.72	5.91	4.54	3.84	4.11	3.41	3.71	2.35
Sanpete	7.86	7.76	7.04	7.55	6.81	4.87	5.44	4.41
Tooele	3.29	2.99	3.80	3.17	2.95	1.91	2.99	2.71
Utah	19.12	20.72	21.42	21.39	21.57	24.00	25.12	22.66
Wasatch	(0.06)	(0.23)	(0.13)	(0.18)	0.00	0.36	(0.12)	0.05
REGIONAL TOTALS	39.59	40.78	39.06	38.15	38.06	36.66	40.18	34.59
<u>Southern Region</u>								
Beaver	0.64	0.73	0.72	0.42	0.52	0.61	0.47	0.78
Garfield	0.12	0.08	0.03	0.08	(0.08)	0.01	(0.00)	0.00
Iron	0.80	0.70	0.58	0.83	0.71	0.92	0.45	0.60
Kane	(0.02)	0.00	0.00	(0.01)	0.00	0.00	(0.02)	0.00
Millard	5.95	5.49	5.29	5.52	5.74	6.27	6.06	5.97
Piute	0.12	0.22	0.23	0.30	(0.08)	(0.12)	(0.11)	0.11
Sevier	6.00	6.48	5.91	5.79	4.58	4.86	4.48	6.25
Washington	0.84	0.71	0.29	1.47	1.02	1.01	0.43	1.21
Wayne	0.06	0.41	0.07	(0.15)	(0.06)	(0.02)	(0.08)	0.09
REGIONAL TOTALS	14.56	14.85	13.16	14.58	12.80	13.82	12.10	15.01
<u>Northeastern Region</u>								
Daggett	(0.02)	(0.09)	(0.13)	(0.01)	(0.01)	0.00	(0.00)	0.07
Duchesne	0.69	3.61	3.74	4.27	3.55	4.22	4.33	4.95
Uintah	2.91	3.56	3.22	3.41	2.71	3.16	2.99	2.43
REGIONAL TOTALS	5.62	7.27	7.10	7.70	6.28	7.38	7.32	7.45
<u>Southeastern Region</u>								
Carbon	1.90	(0.06)	1.92	1.76	1.54	2.21	1.51	1.73
Emery	2.66	2.79	3.71	3.05	2.99	2.80	2.63	4.37
Grand	0.02	0.12	0.25	0.04	(0.11)	(0.24)	(0.06)	0.09
San Juan	0.12	0.17	0.03	(0.04)	(0.01)	(0.13)	(0.04)	0.05
REGIONAL TOTALS	4.94	5.91	4.67	5.34	4.57	5.04	4.23	6.25
Unknown Counties	0.25	0.05	0.09	0.74	0.06	0.00	0.05	1.56
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

() Data may be biased because sample size inflated county harvest beyond reasonable estimate for known pheasant populations.

Table 13. Statewide summary of pheasant harvest statistics, 1948-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Pheasants Per Hunter-Day	Pheasants Per Hunter
1948	96,534	280,914	--	--	2.91
1949	88,369	263,340	189,453	1.39	2.98
1950	92,724	249,428	235,309	1.06	2.69
1951	76,576	246,575	171,233	1.44	3.22
1952	78,773	246,559	185,383	1.33	3.13
1953	82,595	245,307	176,480	1.39	2.97
1954	82,370	260,289	201,774	1.29	3.16
1955	78,793	196,195	178,359	1.10	2.49
1956	77,826	206,239	182,512	1.13	2.65
1957	83,025	228,319	170,387	1.34	2.75
1958	88,290	309,015	220,725	1.40	3.50
1959	86,268	243,276	202,730	1.21	2.82
1960	81,976	232,812	177,719	1.31	2.84
1961	83,493	238,439	243,305	0.98	2.86
1962	86,336	262,448	209,921	1.25	3.04
1963	87,647	297,873	198,582	1.50	3.40
1964	88,242	225,775	196,314	1.15	2.56
1965	77,409	211,876	186,215	1.14	2.74
1966	78,721	249,814	209,082	1.19	3.17
1967	85,664	284,000	257,033	1.10	3.32
1968	90,453	297,752	267,788	1.11	3.29
1969	90,573	250,241	277,887	0.90	2.76
1970	78,585	250,503	244,958	1.02	3.19
1971	87,878	259,189	294,618	0.88	2.95
1972	84,311	240,573	327,669	0.73	2.85
1973	75,968	196,012	278,033	0.70	2.58
1974	85,252	167,408	282,294	0.59	1.96
1975	77,566	143,783	234,615	0.61	1.85
1976	74,029	151,476	214,023	0.71	2.05
1977	67,195	148,168	191,142	0.78	2.21
1978	83,800	220,398	257,305	0.86	2.63
1979	87,462	216,700	266,245	0.81	2.48
1980	84,868	228,442	249,770	0.91	2.69
1981	83,408	234,217	265,381	0.88	2.81
1982	85,368	208,437	280,624	0.74	2.44
1983	77,847	220,074	265,731	0.83	2.83
1984	76,840	192,190	258,169	0.74	2.50
1985	69,889	146,807	233,328	0.63	2.10
1986	59,987	114,389	207,346	0.55	1.91
1987	57,118	119,236	199,470	0.60	2.09
1988	54,514	97,658	184,180	0.53	1.79
1989	50,382	80,769	177,364	0.46	1.60
1990	47,025	78,944	161,634	0.49	1.68
1991	42,813	72,612	150,096	0.48	1.70
1992	41,640	85,803	150,244	0.57	2.06
1993	39,640	63,336	141,399	0.45	1.60
Totals					
(1948-93)	3,536,042	9,463,610	9,853,829	--	--
Averages					
(1948-92)	77,698	208,895	215,832	0.93	2.63

Table 14. Pheasant field bag check summary, 1993.

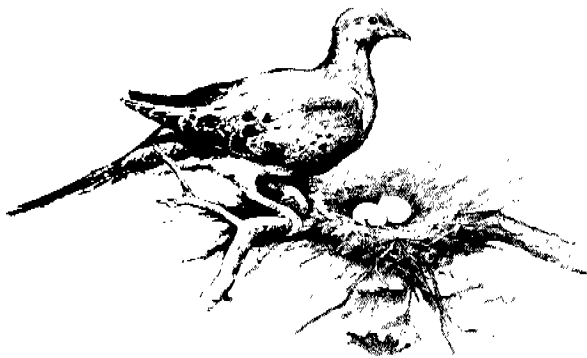
Region and County	All Hunts				Complete Hunts				Birds/ Hunter		
	Total Parties	Total Hunters	Total Hours	Total Birds	Birds/ 100 Hr	Complete Hunts	Total Hunters	Total Hours		Total Birds	Birds/ 100 Hr
Northern Region											
Box Elder	--	--	--	--	--	--	173	--	39	--	0.23
Cache	7	21	89	11	12	5	16	82	10	12	0.63
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	7	21	89	11	12	5	189	82	49	60	0.26
Central Region											
Juab	25	78	--	19	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Saunpete	17	41	152	10	7	6	12	50	6	12	0.50
Tooele	17	52	148	22	15	4	8	36	5	14	0.63
Utah	232	477	1,266	95	8	52	89	272	32	12	0.36
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	291	648	1,566	146	9	62	109	358	43	12	0.39
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	33	104	356	22	6	5	24	136	9	7	0.38
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	33	104	356	22	6	5	24	136	9	7	0.38
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--
Uintah	5	11	49	2	4	--	--	--	--	--	--
REGIONAL TOTALS	5	11	49	2	4	--	--	--	--	--	--
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	66	178	424	52	12	34	85	112	25	22	0.29
Grand	6	12	12	4	35	5	10	10	4	42	0.40
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	72	190	436	56	13	39	95	122	29	24	0.31
STATE TOTALS	408	974	2,495	237	9	111	417	698	130	19	0.31

Table 15. Pheasant hunter success trend as determined by field check, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr Hunter	Birds/100 Hr Hunter
Northern Region												
Box Elder	7	0.21	8	0.22	18	0.27	100	1.00	--	0.30	--	0.23
Cache	2	0.08	4	0.10	7	0.23	40	0.57	--	--	12	0.63
Davis	8	0.20	2	0.06	8	0.19	--	0.00	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	11	0.21	9	0.12	--	--	27	1.00	--	--	--	--
REGIONAL TOTALS	28	0.20	8	0.18	33	0.27	24	0.30	--	0.30	60	0.26
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	13	0.38	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	17	1.05	13	0.52	12	0.50
Tooele	--	--	8	0.26	--	--	--	--	--	--	14	0.63
Utah	16	0.50	24	0.53	19	0.40	13	0.34	26	0.76	12	0.36
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	16	0.08	19	0.46	17	0.40	14	0.47	22	0.70	12	0.39
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	10	0.33	4	0.24	8	0.48	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	56	0.56	--	--	--	--	--	--	--	--	7	0.38
Washington	17	0.22	38	0.71	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	12	0.37	4	0.24	8	0.05	--	--	--	--	7	0.38
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	27	1.96	16	0.85	16	0.84	13	0.50	16	1.13	--	--
Uintah	8	0.53	4	0.15	10	0.43	--	--	50	0.50	--	--
REGIONAL TOTALS	20	1.41	14	0.68	14	0.65	13	0.48	18	0.92	--	--
Southeastern Region												
Carbon	25	0.71	25	0.50	--	--	--	--	--	--	--	--
Emery	--	0.43	26	0.63	9	0.19	22	0.36	34	0.51	22	0.29
Grand	--	--	--	--	--	--	--	--	--	--	42	0.40
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	25	0.71	26	0.53	9	0.19	22	0.36	34	0.51	24	0.31
STATE TOTALS	11	0.35	10	0.30	12	0.36	16	0.42	36	0.46	19	0.31

MIGRATORY UPLAND GAME BIRDS

SUMMARY



Mourning Doves

The breeding density index increased slightly in 1993, but remained 6 percent below average.

Harvest statistics derived from the questionnaire indicated an increase in number of hunters and harvest compared to 1992. However, hunter success for the season increased slightly.

Field bag checks indicated a significant increase in hunter success on opening day. Hunters who participated hunted less hours than the previous year, and spent more time afield per dove harvested.

Aging of wings indicated the juvenile per 100 adult ratio decreased to 86 compared to 92 in 1992. Juvenile per 100 adult ratio remains 25 percent below the long-term average.

Band-tailed Pigeons

A band-tailed pigeon hunting permit was required again in 1993 to obtain mailing addresses for a questionnaire. Thirteen hunters purchased permits and 3 went afield. No pigeons were harvested.



MOURNING DOVE

Call Count Survey

Results of the 1993 call count survey are found in Table 1 of this section. The long-term trend of the state's breeding density index (average doves heard per route) is shown in Table 2. Indices shown in each of these tables are unweighted and consequently differ from those published in the annual Mourning Dove Status Report compiled by the U.S. Fish and Wildlife Service. However, indicated trends are similar (Figure 1). The following is a comparison of the results of the 1993 survey compared to 1992 and the average for the period 1964-1992:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Average doves heard per route	11.67	+27	-6
Average doves seen per route	9.07	+64	-35

Call count data indicated slightly increased breeding activity in late May compared to 1992, and was only 6 percent below the long-term average of doves heard per route.

Harvest

Hunter Questionnaire

Information obtained from the hunter questionnaire for 1993 is summarized in Table 3. Long-term trends of mourning doves bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 4-6 and total statewide harvest statistics in Table 7 and Figures 2 and 3. The following is a comparison of the harvest statistics for 1993 compared to 1992 and the previous 42-year average:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Mourning dove hunters	19,725	+9	-11
Mourning doves harvested	170,834	+6	-17
Hunter-days afield	68,143	-1	-1
Mourning doves per hunter-day	2.51	+7	-24
Mourning doves per hunter	8.66	-4	-4

Hunter success increased slightly from 1992. Total harvest increased 6 percent compared to 1992. Numbers of dove hunters increased 9 percent and hunter-days afield decreased slightly. Doves per hunter-day and doves per hunter increased 7 percent from 1992.

Long-term harvest trends are depicted in Figure 2.

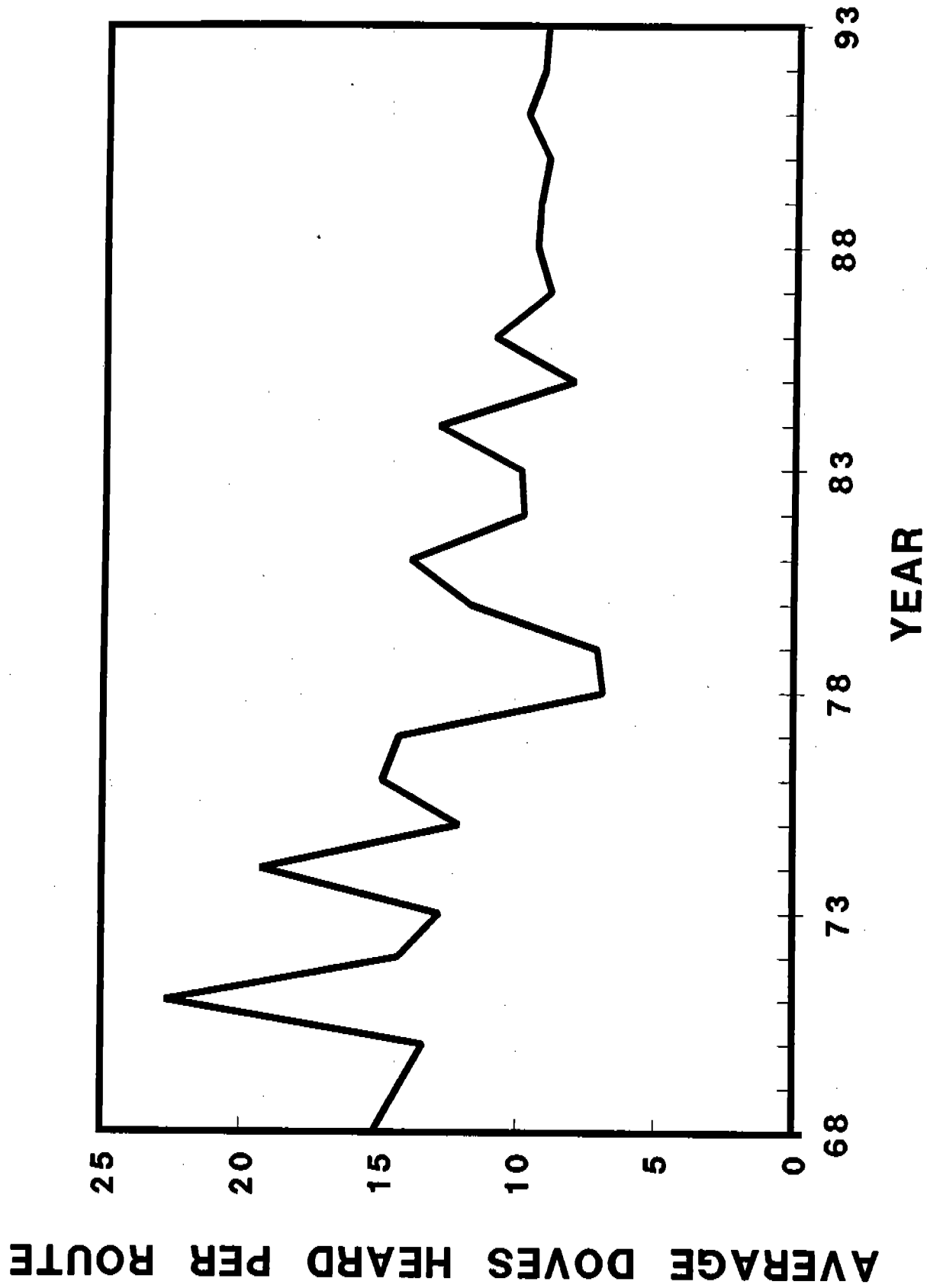


Figure 1. Mourning dove breeding density index trend, 1968-93.

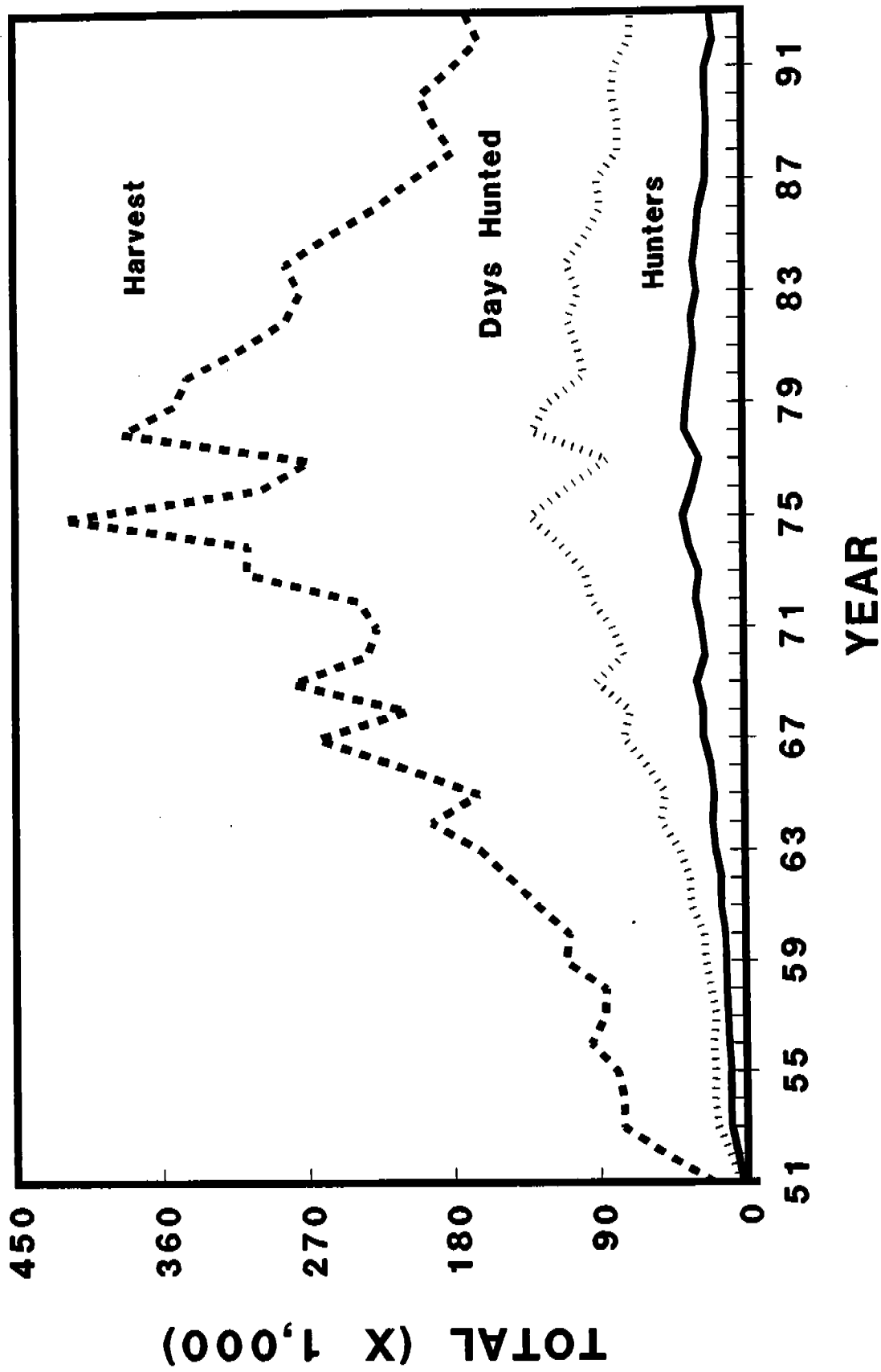


Figure 2. Statewide trends of mourning dove harvest statistics, 1951-93.

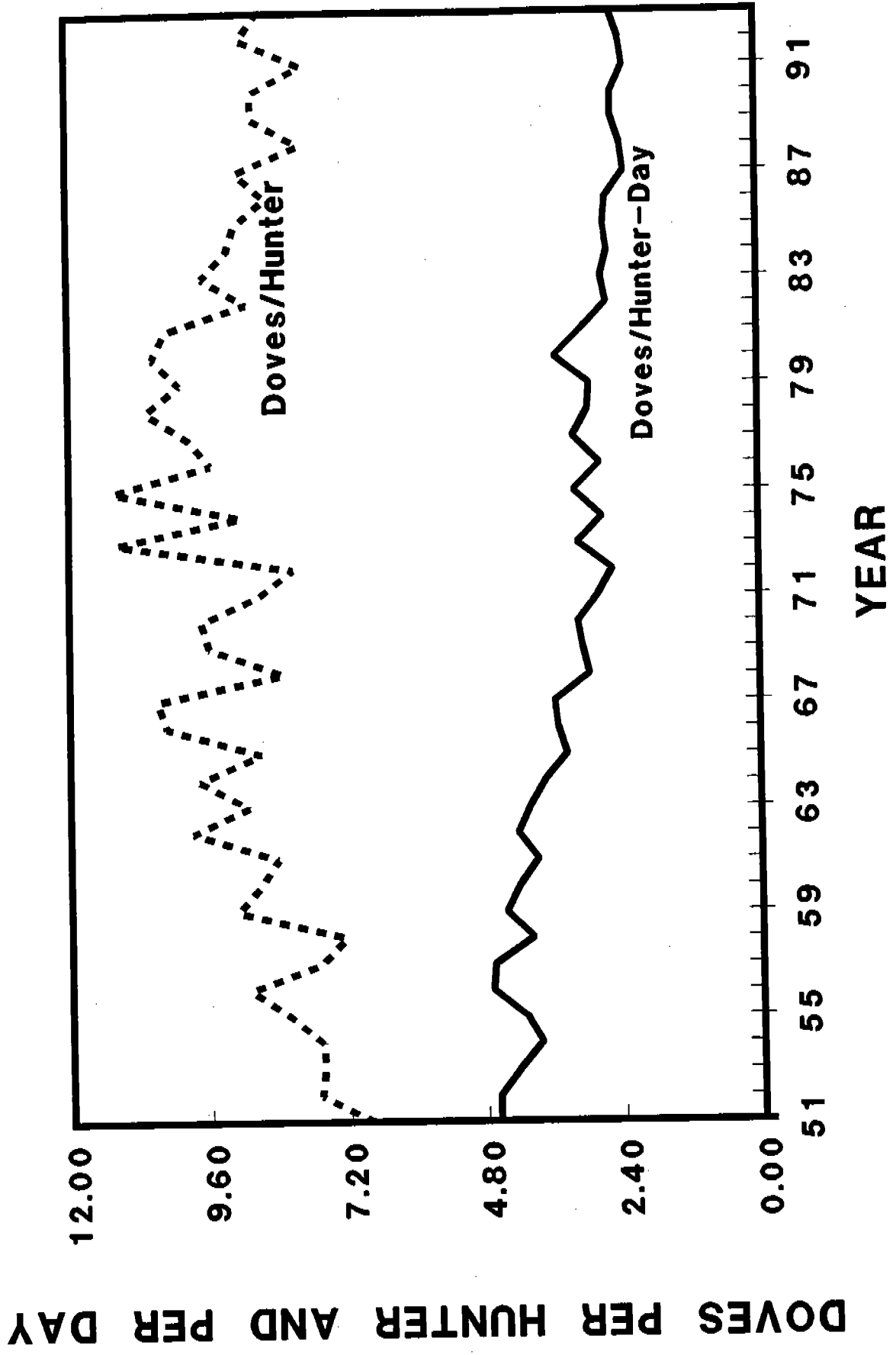
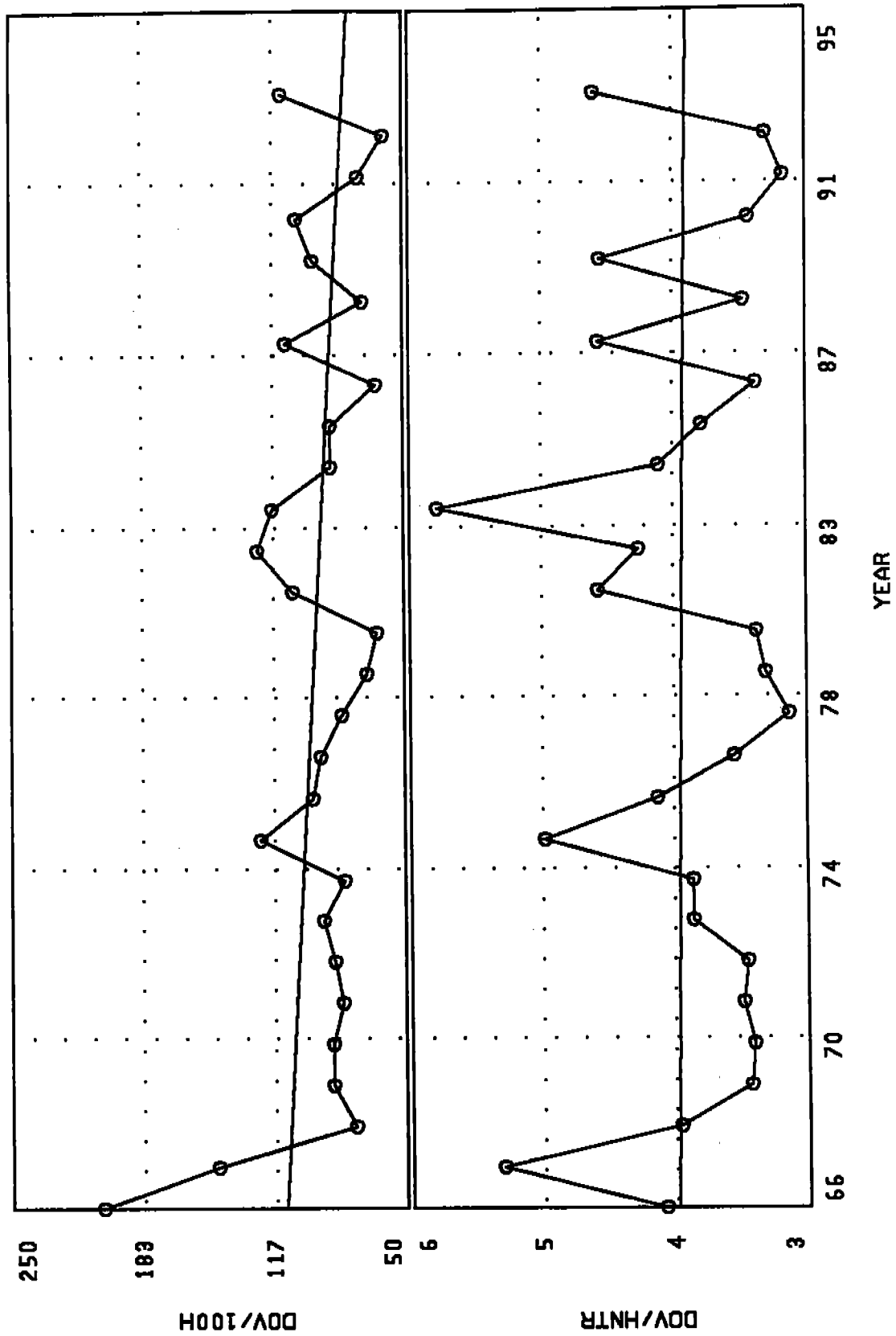


Figure 3. Statewide trends of mourning dove hunter success rates, 1951-93.

FIGURE 4. MOURNING DOVE FIELD BAG CHECK INDICES, 1966-93.



Field Bag Checks

A summary of field bag check data for 1993 is shown in Table 8. Hunter success trends determined via this method are shown in Table 9. Results of the 1993 survey compared to 1992 and the 10-year average (1983-92) follow:

	1993	Percent change from	
		1992	Average
Total hunters checked	728	+86	-48
Total hours hunted	2,828	+53	-48
Doves per hunter (complete hunts)	4.36	+56	+19
Doves bagged per 100 hours (complete hunts)	112	+87	+28
Average hours per hunter-day (complete hunts)	3.88	-18	-4
Hours hunted per dove bagged (complete hunts)	0.89	+48	-17

Field bag checks indicated an opening day increase in hunter success. The total number of hunters checked was up 86 percent from 1992. Dove hunters spent less time afield per hunter-day than in 1992, and more time was spent per dove bagged, according to field bag check data.

Age Composition of the Harvest

A summary of the age composition of harvested mourning doves from 1983 through 1993 is contained in Table 10. Hatching dates for immature doves harvested in the Northern Region since 1982 are shown in Table 11.

Following is a comparison of data collected in 1993 compared to 1992 and long-term averages (1967-92):

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Sample size	2,047	+131	-33
Immatures/100 adults	86	-7	-25

Sample size increased 131 percent in 1993. The 86 immatures per 100 adults in the harvest was down 7 percent from the previous year and 25 percent below the long-term average.

Table 1. Summary of the mourning dove call-count survey for 1993.

Region and County	Route Number	Total Doves Heard / Route	Total Doves Seen / Route
Northern Region			
Box Elder	R1500	5	12
Summit	R1020	4	0
REGIONAL TOTALS		9	12
Central Region			
Juab	R2830	42	5
REGIONAL TOTALS		42	5
Southern Region			
Beaver	R3820	1	9
Garfield	R1090	2	0
Iron	R4000	49	5
Millard	R3640	7	2
Sevier-Sanpete	R0370	2	24
Washington	R4310	16	0
Wayne-Sevier	R0660	6	1
REGIONAL TOTALS		83	41
Northeastern Region			
Duchesne	R0080	2	39
Unitah	R0220	3	11
REGIONAL TOTALS		5	50
Southeastern Region			
Emery	R0540	14	8
San Juan	R1171	21	20
San Juan	R1450	1	0
REGIONAL TOTALS		36	28
STATE TOTALS		175	136
STATE AVERAGES		11.67	9.07
PERCENT CHANGE (from previous year)		27	64

Table 2. Regional and county summary of mourning dove breeding population trend as indicated by the number of doves heard per route during random call count surveys, 1978-93.

Region and County	Route Number	Number of Doves Heard Per Route															
		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Northern Region																	
Box Elder	R1500	2	9	4	8	--	1	0	0	1	2	0	0	1	1	4	5
Summit	R1020	5	6	5	4	5	--	1	4	5	3	5	3	3	3	4	4
REGIONAL TOTALS		7	15	9	12	5	1	1	4	6	5	5	3	4	4	8	9
Central Region																	
Juab	R2830	31	15	31	22	9	25	19	20	19	16	23	13	36	38	15	42
REGIONAL TOTALS		31	15	31	22	9	25	19	20	19	16	23	13	36	38	15	42
Southern Region																	
Beaver	R3820	0	5	9	7	13	3	6	6	4	17	13	14	9	--	3	1
Garfield	R1090	0	0	0	9	2	3	15	3	1	1	0	16	0	0	3	2
Iron	R4000	12	14	40	36	21	19	31	41	26	23	20	10	12	15	26	49
Millard	R3640	8	4	2	10	9	5	14	2	2	3	5	4	5	8	7	7
Sevier-Sanpete	R0370	0	0	3	0	0	3	5	4	4	3	3	2	6	2	5	2
Washington	R4310	1	4	3	6	0	14	1	0	6	7	1	6	12	14	12	16
Wayne-Sevier	R0660	1	2	5	14	4	--	17	3	2	0	3	7	5	0	3	6
REGIONAL TOTALS		22	29	62	82	49	47	89	59	45	54	45	59	49	39	59	83
Northeastern Region																	
Duchesne	R0080	2	2	1	13	7	0	1	8	3	4	8	13	11	7	3	2
Utah	R0220	4	--	49	19	1	9	10	5	20	12	6	0	2	3	2	3
REGIONAL TOTALS		6	2	50	32	8	9	11	13	23	16	14	13	13	10	5	5
Southeastern Region																	
Emery	R0540	10	9	7	22	7	11	10	3	10	11	15	8	2	5	8	14
San Juan	R1170	24	28	14	38	26	30	57	25	60	31	37	43	31	38	34	21
San Juan	R1450	3	1	3	0	24	5	7	2	0	1	2	1	0	3	9	1
REGIONAL TOTALS		37	38	24	60	57	46	74	30	70	43	54	52	33	46	51	36
STATE TOTALS		103	99	176	208	128	128	194	126	163	134	141	140	135	137	138	175
STATE AVERAGES		6.87	6.60	11.73	13.87	8.53	8.53	12.93	8.40	10.87	8.93	9.40	9.33	9.00	9.79	9.20	11.67
PERCENT CHANGE (from previous year)		-52	-4	78	18	-38	0	52	-35	29	-18	5	-1	-4	1	-8	27

Table 3. Summary of mourning dove hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	122	7,658	19,097	2.49	11.24	11.18
CACHE	69	4,408	8,285	1.88	6.47	4.85
DAVIS	23	969	1,349	1.39	1.42	0.79
MORGAN	8	323	285	0.88	0.47	0.17
RICH	8	323	380	1.18	0.47	0.22
SUMMIT	3	152	38	0.25	0.22	0.02
WEBER	63	3,572	5,358	1.50	5.24	3.14
REGIONAL TOTALS	296	17,406	34,794	2.00	25.54	20.37
CENTRAL REGION						
JUAB	124	4,484	19,059	4.25	6.58	11.16
SALT LAKE	48	2,356	4,427	1.88	3.46	2.59
SANPETE	35	2,185	7,012	3.21	3.21	4.10
TOOELE	123	6,650	13,700	2.06	9.76	8.02
UTAH	217	10,698	22,651	2.12	15.70	13.26
WASATCH	16	1,140	2,090	1.83	1.67	1.22
REGIONAL TOTALS	563	27,515	68,941	2.51	40.38	40.36
SOUTHERN REGION						
BEAVER	18	2,033	3,097	1.52	2.98	1.81
GARFIELD	3	190	665	3.50	0.28	0.39
IRON	27	1,672	4,047	2.42	2.45	2.37
KANE	6	418	1,710	4.09	0.61	1.00
MILLARD	96	5,168	22,746	4.40	7.59	13.31
PIUTE	5	228	646	2.83	0.33	0.38
SEVIER	44	3,021	6,346	2.10	4.43	3.72
WASHINGTON	34	3,458	9,463	2.74	5.08	5.54
WAYNE	4	266	266	1.00	0.39	0.16
REGIONAL TOTALS	237	16,456	48,989	2.98	24.15	28.68
NORTHEASTERN REGION						
DAGGETT	1	19	133	7.00	0.03	0.08
DUCHESNE	16	1,178	2,964	2.52	1.73	1.74
UINTAH	27	1,577	3,344	2.12	2.31	1.96
REGIONAL TOTALS	44	2,774	6,441	2.32	4.07	3.77
SOUTHEASTERN REGION						
CARBON	21	646	1,824	2.82	0.95	1.07
EMERY	25	1,045	3,895	3.73	1.53	2.28
GRAND	6	266	589	2.21	0.39	0.34
SAN JUAN	11	456	1,577	3.46	0.67	0.92
REGIONAL TOTALS	63	2,413	7,886	3.27	3.54	4.62
UNKNOWN	18	1,577	3,781	2.40	2.31	2.21
STATE TOTALS	1,221	68,143	170,834	2.51	100.00	100.00

* Total hunter trips from questionnaire returns.

Table 4. Summary of mourning doves bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	3.18	3.46	3.41	2.83	2.73	2.27	2.56	2.49
Cache	1.92	1.79	1.92	2.24	1.67	1.97	2.16	1.88
Davis	1.24	1.18	1.51	1.31	1.53	1.77	1.19	1.39
Morgan	2.04	3.00	2.36	1.03	1.73	2.31	2.47	0.88
Rich	3.72	0.00	2.63	1.26	1.95	3.45	2.27	1.18
Summit	1.08	2.50	2.19	1.61	7.00	1.78	3.25	0.25
Weber	1.63	1.15	1.21	1.88	1.48	1.30	1.79	1.50
REGIONAL TOTALS	2.26	2.19	2.09	2.20	2.02	1.99	2.16	2.00
<u>Central Region</u>								
Juab	4.54	2.95	3.25	4.45	3.70	3.33	3.34	4.25
Salt Lake	1.95	1.36	1.84	2.18	2.37	2.02	2.14	1.88
Sanpete	3.51	1.88	2.75	2.40	3.06	2.69	2.06	3.21
Tooele	2.87	2.17	2.31	2.88	1.90	2.29	2.14	2.06
Utah	2.14	2.30	1.97	2.08	2.05	1.89	1.77	2.12
Wasatch	1.97	0.82	1.20	1.22	2.42	2.11	2.37	1.83
REGIONAL TOTALS	2.72	2.11	2.23	2.55	2.41	2.25	2.10	2.51
<u>Southern Region</u>								
Beaver	2.02	1.72	3.50	4.35	1.71	3.32	3.41	1.52
Garfield	0.20	1.67	3.86	2.27	2.34	2.40	1.67	3.50
Iron	3.54	3.10	3.71	2.91	4.38	2.80	3.96	2.42
Kane	1.06	3.06	1.71	3.11	1.00	3.03	4.05	4.09
Millard	3.58	2.83	3.01	3.54	4.42	3.13	3.30	4.40
Piute	1.62	1.67	4.17	0.00	1.45	2.50	1.33	2.83
Sevier	1.82	2.15	2.03	2.70	2.18	2.09	2.42	2.10
Washington	3.90	2.68	3.37	2.12	2.81	3.63	2.54	2.74
Wayne	2.57	5.65	2.29	3.53	0.61	0.75	2.86	1.00
REGIONAL TOTALS	2.85	2.62	2.90	3.01	3.20	2.87	3.09	2.98
<u>Northeastern Region</u>								
Daggett	1.20	0.83	0.00	0.25	2.00	1.00	3.25	7.00
Duchesne	2.70	2.46	2.83	1.42	1.85	2.21	2.24	2.52
Uintah	1.91	2.82	2.68	2.33	3.17	1.06	2.06	2.12
REGIONAL TOTALS	2.05	2.55	2.68	1.82	2.46	1.64	2.15	2.32
<u>Southeastern Region</u>								
Carbon	2.76	1.94	2.06	0.75	1.18	2.15	1.51	2.82
Emery	1.62	2.41	2.87	1.77	2.04	1.68	3.10	3.73
Grand	4.28	2.41	2.00	2.18	4.04	1.13	0.00	2.21
San Juan	3.26	4.08	2.91	4.22	1.69	3.56	2.61	3.46
REGIONAL TOTALS	2.54	2.76	2.56	1.85	2.07	2.14	2.46	3.27
Unknown Counties	0.00	1.93	1.30	2.86	0.00	0.00	0.00	2.40
STATE TOTALS	2.65	2.61	2.28	2.49	2.49	2.28	2.35	2.51

Table 5. Percentage distribution of mourning dove harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	10.36	11.51	10.31	12.06	9.95	9.60	9.09	11.18
Cache	2.46	2.99	2.94	4.87	3.34	5.54	7.20	4.85
Davis	2.08	1.93	3.27	2.01	2.57	2.39	1.15	0.79
Morgan	0.44	0.18	0.61	0.44	0.59	0.65	0.81	0.17
Rich	1.08	0.00	0.66	0.26	0.38	0.97	0.65	0.22
Summit	0.12	0.18	0.65	0.32	0.51	0.16	0.86	0.02
Weber	2.71	2.12	3.67	3.54	3.54	2.39	4.59	3.14
REGIONAL TOTALS	19.26	18.92	22.15	23.50	20.88	21.71	24.35	20.37
<u>Central Region</u>								
Juab	11.09	8.36	8.09	9.79	9.45	8.78	6.74	11.16
Salt Lake	5.50	5.39	4.37	3.56	5.71	5.00	5.15	2.59
Sanpete	5.54	2.88	4.30	4.34	3.23	4.84	3.57	4.10
Tocele	11.39	8.55	10.92	8.58	6.37	8.56	6.66	8.02
Utah	14.38	20.06	16.17	16.27	12.83	16.37	15.16	13.26
Wasatch	0.52	0.61	0.90	0.54	1.08	0.94	0.99	1.22
REGIONAL TOTALS	48.42	45.87	44.78	43.08	38.67	44.50	38.27	40.36
<u>Southern Region</u>								
Beaver	1.82	1.67	1.76	2.28	1.29	1.94	2.10	1.81
Garfield	0.01	0.12	0.25	1.09	0.92	0.35	0.05	0.39
Iron	3.82	3.24	3.22	3.07	6.20	3.07	5.57	2.37
Kane	0.30	0.66	0.33	0.64	0.07	0.91	0.98	1.00
Millard	9.42	9.80	11.73	9.92	13.35	9.29	11.80	13.31
Piute	0.19	0.24	0.46	0.00	0.57	0.68	0.31	0.38
Sevier	3.50	4.67	3.59	6.11	4.05	4.80	5.66	3.72
Washington	3.26	2.28	1.10	2.62	4.99	5.16	1.50	5.54
Wayne	0.33	1.35	0.14	0.73	0.11	0.03	0.22	0.16
REGIONAL TOTALS	22.64	24.05	22.63	26.46	31.57	26.22	28.19	28.68
<u>Northeastern Region</u>								
Daggett	0.16	0.12	0.00	0.02	0.06	0.01	0.14	0.08
Duchesne	1.05	0.76	1.27	0.85	1.62	2.61	1.21	1.74
Uintah	1.92	2.81	2.46	1.70	2.46	1.21	2.01	1.96
REGIONAL TOTALS	3.14	3.70	3.73	2.57	4.15	3.82	3.36	3.77
<u>Southeastern Region</u>								
Carbon	1.65	0.74	1.67	0.44	0.41	1.24	1.16	1.07
Emery	1.83	2.66	3.70	2.23	2.85	1.16	3.64	2.28
Grand	1.24	0.84	0.18	0.26	0.96	0.18	0.00	0.34
San Juan	1.81	2.54	0.59	1.24	0.51	1.18	1.03	0.92
REGIONAL TOTALS	6.54	6.80	6.16	4.17	4.74	3.74	5.84	4.62
Unknown counties	0.00	0.64	0.53	0.22	0.00	0.00	0.00	2.21
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 6. Percentage distribution of mourning dove hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	8.50	7.59	7.07	10.62	9.07	9.63	8.33	11.24
Cache	3.34	3.81	3.59	5.43	4.96	6.43	7.84	6.47
Davis	4.38	3.75	5.08	3.80	4.19	3.08	2.27	1.42
Morgan	0.57	0.13	0.61	1.06	0.85	0.64	0.77	0.47
Rich	0.76	0.00	0.59	0.52	0.49	0.64	0.67	0.47
Summit	0.28	0.16	0.70	0.49	0.18	0.20	0.62	0.22
Weber	4.35	4.22	7.11	4.70	5.94	4.19	6.03	5.24
<u>REGIONAL TOTALS</u>	<u>22.17</u>	<u>19.69</u>	<u>24.77</u>	<u>26.62</u>	<u>25.67</u>	<u>24.83</u>	<u>26.53</u>	<u>25.54</u>
<u>Central Region</u>								
Juab	6.37	6.47	5.82	5.49	6.35	6.01	4.74	6.58
Salt Lake	7.36	9.02	5.52	4.07	5.99	5.64	5.65	3.46
Sanpete	4.12	3.51	3.65	4.51	2.62	4.10	4.07	3.21
Tooele	10.36	8.99	11.08	7.41	8.33	8.54	7.32	9.76
Utah	17.53	19.93	19.18	19.53	15.52	19.75	20.08	15.70
Wasatch	0.69	1.70	1.77	1.11	1.11	1.02	0.98	1.67
<u>REGIONAL TOTALS</u>	<u>46.43</u>	<u>49.64</u>	<u>47.09</u>	<u>42.12</u>	<u>39.91</u>	<u>45.06</u>	<u>42.85</u>	<u>40.38</u>
<u>Southern Region</u>								
Beaver	2.34	2.22	1.18	1.30	1.88	1.33	1.44	2.98
Garfield	0.12	0.16	0.15	1.20	0.98	0.33	0.08	0.28
Iron	2.82	2.38	2.03	2.63	3.52	2.51	3.30	2.45
Kane	0.73	0.49	0.46	0.52	0.18	0.69	0.57	0.61
Millard	6.86	7.89	9.11	6.98	7.50	6.77	8.40	7.59
Piute	0.31	0.32	0.26	0.05	0.98	0.62	0.54	0.33
Sevier	4.99	4.96	4.14	5.65	4.63	5.24	5.49	4.43
Washington	2.18	1.94	0.76	3.07	4.42	3.24	1.39	5.08
Wayne	0.33	0.54	0.15	0.52	0.46	0.09	0.18	0.39
<u>REGIONAL TOTALS</u>	<u>20.68</u>	<u>20.95</u>	<u>18.26</u>	<u>21.92</u>	<u>24.54</u>	<u>20.81</u>	<u>21.40</u>	<u>24.15</u>
<u>Northeastern Region</u>								
Daggett	0.35	0.32	0.06	0.22	0.08	0.02	0.10	0.03
Duchesne	1.02	0.71	1.05	1.49	2.18	2.68	1.26	1.73
Uintah	2.63	2.27	2.14	1.82	1.93	2.60	2.29	2.31
<u>REGIONAL TOTAL</u>	<u>4.00</u>	<u>3.31</u>	<u>3.26</u>	<u>3.53</u>	<u>4.19</u>	<u>5.30</u>	<u>3.66</u>	<u>4.07</u>
<u>Southeastern Region</u>								
Carbon	1.56	0.87	1.90	1.44	0.87	1.31	1.80	0.95
Emery	2.96	2.52	3.02	3.15	3.47	1.58	2.76	1.53
Grand	0.76	0.79	0.21	0.30	0.59	0.36	0.08	0.39
San Juan	1.44	1.42	0.48	0.73	0.75	0.75	0.93	0.67
<u>REGIONAL TOTALS</u>	<u>6.72</u>	<u>5.62</u>	<u>5.62</u>	<u>5.62</u>	<u>5.68</u>	<u>3.99</u>	<u>5.57</u>	<u>3.54</u>
Unknown counties	0.00	0.76	0.96	0.19	0.00	0.00	0.00	2.31
<u>STATE TOTALS</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

Table 7. Statewide summary of mourning dove harvest statistics, 1951-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Doves Per Hunter-Day	Doves Per Hunter
1951	3,007	20,448	4,455	4.59	6.80
1952	6,420	49,498	10,784	4.59	7.71
1953	9,887	75,636	17,797	4.25	7.65
1954	9,901	75,941	19,724	3.85	7.67
1955	9,653	79,444	19,282	4.12	8.23
1956	10,744	95,729	20,411	4.69	8.91
1957*	11,298	86,769	18,620	4.66	7.68
1958	11,853	85,934	21,591	3.98	7.25
1959	12,142	110,856	24,911	4.45	9.13
1960	12,440	108,477	25,766	4.21	8.72
1961	15,192	128,001	33,434	3.89	8.42
1962	14,663	144,826	34,281	4.23	9.89
1963	18,258	162,769	40,490	4.02	8.91
1964	19,829	193,538	51,671	3.75	9.76
1965	18,710	164,087	48,835	3.36	8.69
1966	20,594	212,696	60,608	3.51	10.33
1967	25,161	263,949	74,171	3.56	10.49
1968	25,105	207,922	70,186	2.96	8.28
1969	29,131	279,311	90,965	3.07	9.59
1970	23,908	232,469	73,984	3.14	9.72
1971	26,064	226,645	81,271	2.79	8.70
1972	29,341	238,354	94,046	2.53	8.12
1973	27,435	307,062	97,788	3.14	11.19
1974	34,021	306,076	112,967	2.71	9.00
1975	37,378	420,308	131,312	3.20	11.24
1976	31,293	298,505	108,780	2.74	9.54
1977	26,905	267,487	83,218	3.21	9.94
1978	35,985	383,696	130,173	2.95	10.66
1979	34,903	351,161	120,459	2.92	10.06
1980	32,627	343,851	97,644	3.52	10.54
1981	30,060	310,068	101,728	3.05	10.31
1982**	31,756	282,188	107,728	2.62	8.89
1983	28,258	272,979	100,568	2.71	9.66
1984	30,573	282,307	108,793	2.59	9.23
1985	28,183	256,045	96,507	2.65	9.09
1986	26,583	226,985	87,084	2.61	8.54
1987***	22,553	204,030	89,378	2.28	9.05
1988	22,457	178,469	76,219	2.34	7.95
1989	21,696	190,328	76,372	2.49	8.77
1990	22,700	199,007	80,076	2.49	8.77
1991	22,632	178,853	78,405	2.28	7.90
1992	18,021	161,902	68,937	2.35	8.98
1993	19,725	170,834	68,143	2.51	8.66
Totals					
(1951-93)	949,045	8,835,440	2,959,562	--	--
Averages					
(1951-92)	22,127	206,300	68,843	3.31	9.05

* Estimated.

** Bag limit increased to 15.

*** Bag limit reduced to 10.

Table 8. Mourning dove field bag check summary, 1993.

Region and County	All Hunts				Complete Hunts				
	Total Parties	Total Hunters	Total Hours	Total Birds/100 Hr	Complete Hunts	Total Hunters	Total Hours	Total Birds/100 Hr	Birds/ Hunter
Northern Region									
Box Elder	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS									
Central Region	65	152	697	626	38	88	421	463	5.26
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--
Tonele	--	--	--	--	--	--	--	--	--
Utah	176	312	1,163	1,214	135	243	915	1,073	4.42
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS									
Southern Region	241	464	1,860	1,840	173	331	1,336	1,536	4.64
Beaver	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS									
Northeastern Region	--	--	--	--	--	--	--	--	--
Daggett	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS									
Southeastern Region	1	1	3	7	1	1	3	7	7.00
Carbon	28	59	149	203	7	12	48	95	7.92
Emery	3	6	11	12	1	2	1	2	1.00
Grand	--	--	--	--	--	--	--	--	--
San Juan	32	66	163	222	9	15	52	104	6.93
REGIONAL TOTALS									
LEHI CHECK STATION	311	1,160	177	1,214	136	242	827	1,073	4.43
NEPHI CHECK STATION	65	152	697	626	38	88	421	463	5.26
THIHKOL CHECK STATION	26	68	249	289	21	52	193	271	5.21
STATE TOTALS									
	675	1,910	3,146	4,191	333	377	728	2,828	4.36

Table 9. Mourning dove hunter success trend as determined by field bag checks, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr Hunter	Birds/100 Hr Hunter
Northern Region												
Box Elder	81	3.21	110	4.55	38	2.29	200	2.27	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--
Davis	33	0.50	160	5.00	110	1.77	158	1.88	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	40	0.71	39	0.83	73	1.00	--	--	--	--
REGIONAL TOTALS	80	3.10	109	4.42	42	1.93	147	1.79	--	--	--	--
Central Region												
Juab	--	--	133	6.39	116	4.60	64	2.49	--	--	110	5.26
Salt Lake	--	--	37	1.30	--	--	14	0.50	--	--	--	--
Saopete	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	285	10.00	--	--	--	--	--	--
Utah	--	--	91	3.47	65	2.43	76	2.86	--	--	117	4.42
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	108	4.28	114	2.95	70	2.69	--	--	115	4.64
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	167	2.50	467	1.40	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	175	1.08	--	--	104	7.78	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	333	10.00	--	--	--	--	--	--	--	--	--	--
Washington	206	5.54	369	1.20	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	213	3.68	444	1.33	104	7.78	--	--	--	--	--	--
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	111	3.33	214	8.57	--	--	--	--	--	--	--	--
REGIONAL TOTALS	111	3.33	214	8.57	--	--	--	--	--	--	--	--
Southeastern Region												
Carbon	85	2.80	--	--	--	--	--	--	219	7.08	280	7.00
Emery	139	4.00	--	--	127	4.00	300	7.50	265	4.07	198	7.92
Grand	--	--	92	2.00	--	--	--	--	--	--	200	1.00
Sun. Juan	200	4.00	--	--	129	6.00	250	5.00	--	--	--	--
REGIONAL TOTALS	113	3.40	92	2.00	127	4.90	294	7.14	235	5.46	202	6.93
LEHI CHECK STATION	50	2.19	91	3.47	65	2.43	76	2.86	50	2.73	130	4.43
NEPHI CHECK STATION	89	5.12	133	6.39	104	7.78	64	2.49	84	4.01	110	5.26
THHOKOL CHECK STATION	--	--	--	--	--	--	--	--	127	3.64	141	5.21
STATE TOTALS	71	3.05	110	4.31	104	3.00	73	2.70	60	2.85	112	4.36

Table 10. Age composition (Immatures/100 Adults) of Mourning Doves Harvested, 1983-93.

Region and County	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92 Average												
	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)	I/ 100A(n)											
Northern Region																								
Box Elder	143	515	135	1,172	146	137	131	1,086	128	770	-	-	-	-										
Cache	67	5	-	181	45	-	-	-	325	17	-	-	-	-										
Davis	55	37	121	42	85	74	-	-	-	-	-	-	-	-										
Morgan	188	46	-	-	-	-	-	-	-	-	-	-	-	-										
Rich	-	-	53	23	600	7	-	-	-	-	-	-	-	-										
Summit	-	-	-	-	-	-	-	-	-	-	-	-	-	-										
Weber	138	34	-	-	-	-	-	-	-	-	-	-	-	-										
REGIONAL TOTALS	143	617	133	1,237	138	263	131	1,086	132	787	-	-	82	435	239	487	-	-	143	702				
Central Region																								
Juab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Salt Lake	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Sanpete	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Tooele	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Wasatch	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
REGIONAL TOTALS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Southern Region																								
Beaver	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Garfield	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Iron	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Kane	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Millard	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Plute	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Senter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Washtington	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Wayne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
REGIONAL TOTALS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Northeastern Region																								
Daggett	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Duchesne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Uintah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
REGIONAL TOTALS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Southeastern Region																								
Carbon	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Emery	-	-	-	52	67	80	187	70	187	85	37	79	143	81	96	169	70	104	104	18				
Grand	-	-	-	-	-	-	-	-	-	50	10	-	-	-	-	-	-	-	-	-				
San Juan	-	-	-	53	227	63	275	31	42	56	39	93	137	36	30	63	150	-	-	-				
REGIONAL TOTALS	-	-	-	53	294	63	462	61	229	56	86	93	353	68	136	81	304	97	122	68				
LEHI CHECK STATION	84	1,021	96	1,517	107	1,391	137	1,396	130	1,283	114	741	92	978	116	144	109	587	-	95	1,048	108	1,011	
NEPHI CHECK STATION	108	1,339	198	1,130	107	1,678	140	1,137	180	1,094	1,047	671	64	955	134	829	126	772	93	406	72	988	218	1,000
THIORKOL CHECK STATION	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
STATE TOTALS	106	2,877	131	3,884	117	3,332	127	3,913	137	3,536	100	1,641	77	2,454	127	1,913	114	1,855	92	887	86	2,047	112	2,735

Table 11. Percent of harvest by hatching date of immature mourning doves in northern Utah, 1984-93.

Date Hatched	Age (Days)	P	PERCENT OF HARVEST BY HATCH DATE										SAMPLE SIZE									
			1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Aug 3	29	none	43.10	44.70	31.20	34.80	--	41.30	52.20	--	37.82	--	304	115	192	155	--	81	254	--	118	--
Jul 31	32	1	29.40	26.80	35.00	21.80	--	30.10	26.70	--	32.05	--	207	69	215	97	--	59	130	--	100	--
Jul 25	38	2	19.00	14.00	15.60	17.50	--	18.40	13.10	--	10.90	--	134	36	96	78	--	36	64	--	34	--
Jul 18	45	3	6.00	3.90	8.60	10.60	--	6.60	4.30	--	9.29	--	42	10	53	47	--	13	21	--	29	--
Jul 9	54	4	2.10	1.90	4.70	5.70	--	2.60	2.30	--	4.49	--	15	5	29	25	--	5	11	--	14	--
Jun 30	63	5	0.40	1.60	2.80	4.30	--	0.50	0.60	--	4.17	--	3	4	17	19	--	1	3	--	13	--
Jun 21	72	6	0.00	0.00	1.30	3.80	--	0.00	0.40	--	0.96	--	0	0	8	17	--	0	2	--	3	--
Jun 8	85	7	--	0.00	0.50	1.10	--	0.50	--	--	0.32	--	0	0	3	5	--	1	--	--	1	--
May 22	102	8	--	0.00	0.30	0.20	--	0.00	--	--	--	--	0	0	2	1	--	0	--	--	--	--
Apr 27	127	9	--	0.00	0.00	0.20	--	0.00	0.40	--	--	--	0	0	0	1	--	0	2	--	--	--
Apr 21	133	10	--	7.00	0.00	0.00	--	0.00	0.00	--	--	--	0	18	0	0	--	0	--	--	--	--
			100	99.90	100	100	--	100	100	--	100	--	705	257	615	445	--	196	487	--	312	--

P = Last primary molted.

BAND-TAILED PIGEON

Banding

Between 1969 and 1978, 2,649 total pigeons were banded in Utah and 975 recaptured. Results of banding efforts through 1972 indicated a direct recovery rate of 1.4 percent. If expanded, using an assumed 30 percent band reporting rate, an estimated harvest rate of less than 5 percent of the state's pigeon population is indicated. Addition of an estimated 16 percent crippling loss would result in a total kill rate of from 5-10 percent, well within the harvestable surplus.

Harvest

Results of the 1993 band-tailed pigeon harvest is in Table 13. Permits were required in 1992 and a questionnaire was sent to participants. Only 13 hunters purchased the \$3.00 band-tailed pigeon permit in 1993. Harvest trends since 1970 are shown in Figures 4 & 5 and Table 14.

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Band-tailed pigeon hunters	8	-56	-84
Band-tailed pigeon harvest	0	--	--
Hunter-days afield	13	-81	-90
Pigeons per hunter-day	--	--	--
Pigeons per hunter	--	--	--

Band-tailed pigeon hunters afield decreased from 1992, and remain 84 percent below the long-term average.

No pigeons were reported harvested in 1993.

Table 13. Band-tailed pigeon harvest statistics, 1993.

Area Hunted	Participating Hunters		Hunter-Days Afield		Harvest		Pigeons/Hunter-Day		Percent	
	Reported	Calc.	Reported	Calc.	Reported	Calc.	Harvest	Pressure**	Harvest	Pressure**
Beaver County	*	*	*	*	*	*	*	*	*	*
Blue Mountain-Eik Ridge	*	*	*	*	*	*	*	*	*	*
Carbon County	*	*	*	*	*	*	*	*	*	*
Garfield County	*	*	*	*	*	*	*	*	*	*
Iron County	*	*	*	*	*	*	*	*	*	*
Kane County	*	*	*	*	*	*	*	*	*	*
LaSal Mountain	*	*	*	*	*	*	*	*	*	*
Millard County	1	3	2	5	0	0	33.33	33.33	*	*
Piute County	*	*	*	*	*	*	*	*	*	*
Sanpete County	*	*	*	*	*	*	*	*	*	*
Utah County	*	*	*	*	*	*	*	*	*	*
Washington County	1	3	1	3	0	0	33.33	33.33	*	*
Wayne County	*	*	*	*	*	*	*	*	*	*
Mixed Counties										
(Washington and Iron)	1	3	2	5	0	0	33.33	33.33	*	*
Totals	3	8	5	13	0	0	100.00	100.00	*	*

**Based on hunter-days.

Projection Factor = 2.6

(13 permits issued/5 questionnaires returned)

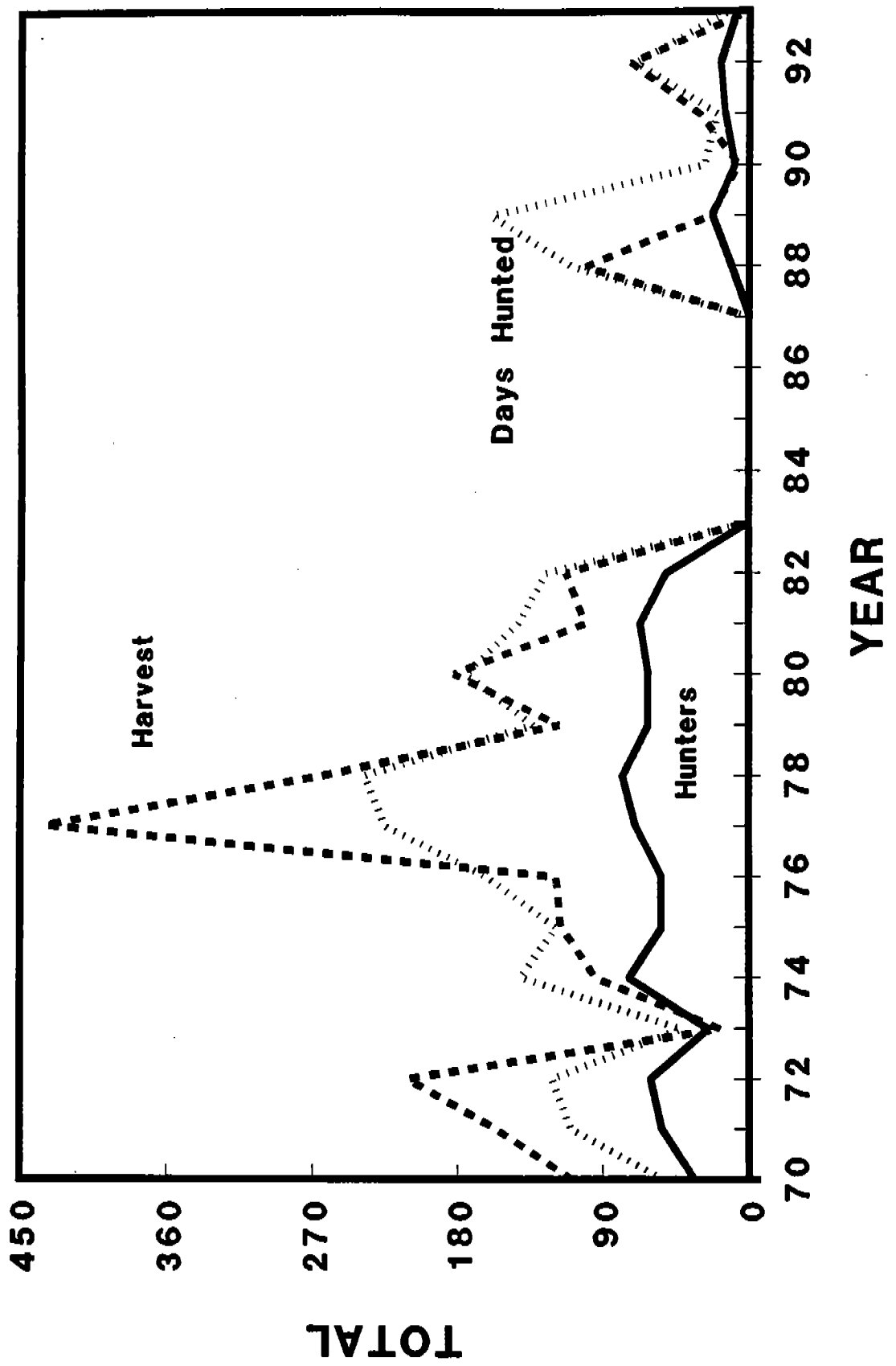


Figure 4. Statewide trends of band-tailed pigeon harvest statistics, 1970-93.

PIGEONS PER HUNTER AND PER DAY

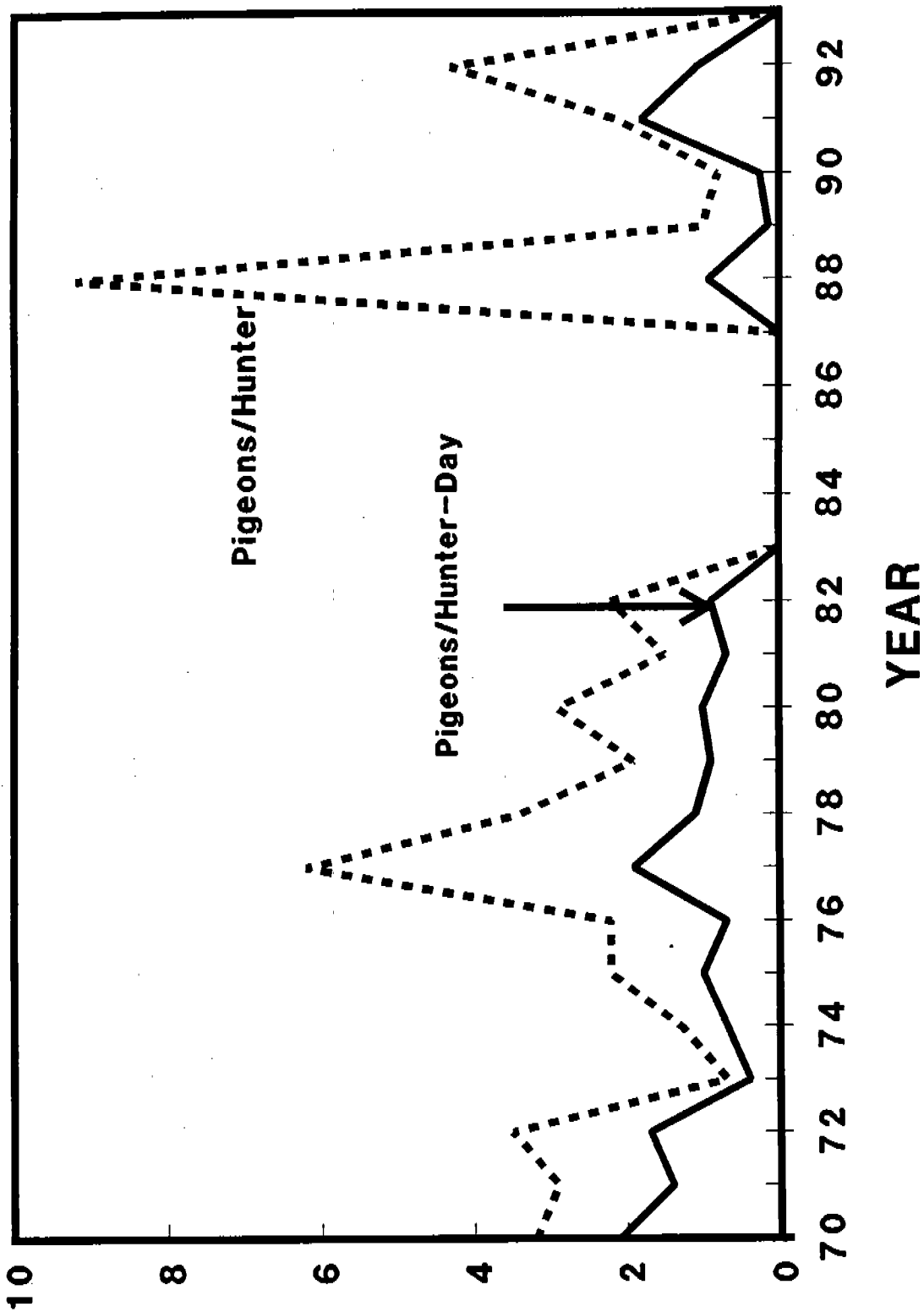


Figure 5. Statewide trends of band-tailed pigeon hunter success rates, 1970-93.

Table 14. Statewide summary of band-tailed pigeon harvest statistics, 1970-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Pigeons/Hunter-Day	Pigeons/Hunter
1970	34	109	53	2.10	3.20
1971	54	156	110	1.40	2.90
1972	61	211	122	1.70	3.50
1973	25	18	42	0.40	0.70
1974	74	95	141	0.70	1.30
1975	54	116	119	1.00	2.20
1976	54	119	162	0.70	2.20
1977	70	435	225	1.90	6.20
1978	78	264	238	1.10	3.40
1979	62	117	133	0.90	1.90
1980	62	182	175	1.00	2.90
1981	67	101	142	0.70	1.50
1982	51	113	125	0.90	2.20
1983	--	--	--	--	--
1984	--	--	--	--	--
1985	--	--	--	--	--
1986	--	--	--	--	--
1987	--	--	--	--	--
1988	11	101	109	0.93	9.20
1989	23	24	159	0.15	1.00
1990	9	7	28	0.26	0.80
1991	15	31	20	1.50	2.10
1992	18	73	70	1.05	4.06
1993	8	0	13	--	--
Totals					
(1970-93)	830	2,272	2,186	--	--
Averages					
(1970-92)	49	136	130	0.99	2.82

CHUKAR PARTRIDGE

SUMMARY

The winter of 1992-93 provided continuous snow pack throughout Utah. Undoubtedly this seriously affected over winter survival of chukar.

Late winter and early spring precipitation, critical to successful chukar production, was above average.

Results of the brood survey indicated that brood production was well above average. However, sample sizes were extremely small.

Harvest statistics from mail questionnaires reflected a decrease in harvest. Hunter success (chukars per hunter-day) decreased 28 percent from 1992. Chukar hunters decreased by 9 percent, while time afield decreased 9 percent from the year before.



Brood Counts

Results of the annual random brood survey for 1993 are shown in Table 1 of this section. Long-term trends of young per adult ratios, mean brood size and chukars observed per 100 hours are found in Tables 2-4 and Figure 1. Following are the survey results for 1993 compared to 1992 and the 10-year (1983-92) average:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total chukars observed	454	+260	0
Young per 100 adults	373	+73	-19
Mean brood size	5.67	-28	-23
Chukars observed per 100 hours	2,064	+932	+394
Total hours effort	22	-65	-80

Winter and early spring precipitation (January-April) was above average over the entire state (Figure 4). Summer temperatures were below normal over most of Utah from June through November.

Effort on chukar brood counts decreased significantly in 1993 and remained well below average.

Brood count sample sizes were extremely small or nonexistent for all regions. Brood count data was reported only in the Southeastern Region. Because of extremely small sample sizes, this data can only represent localized population trends.

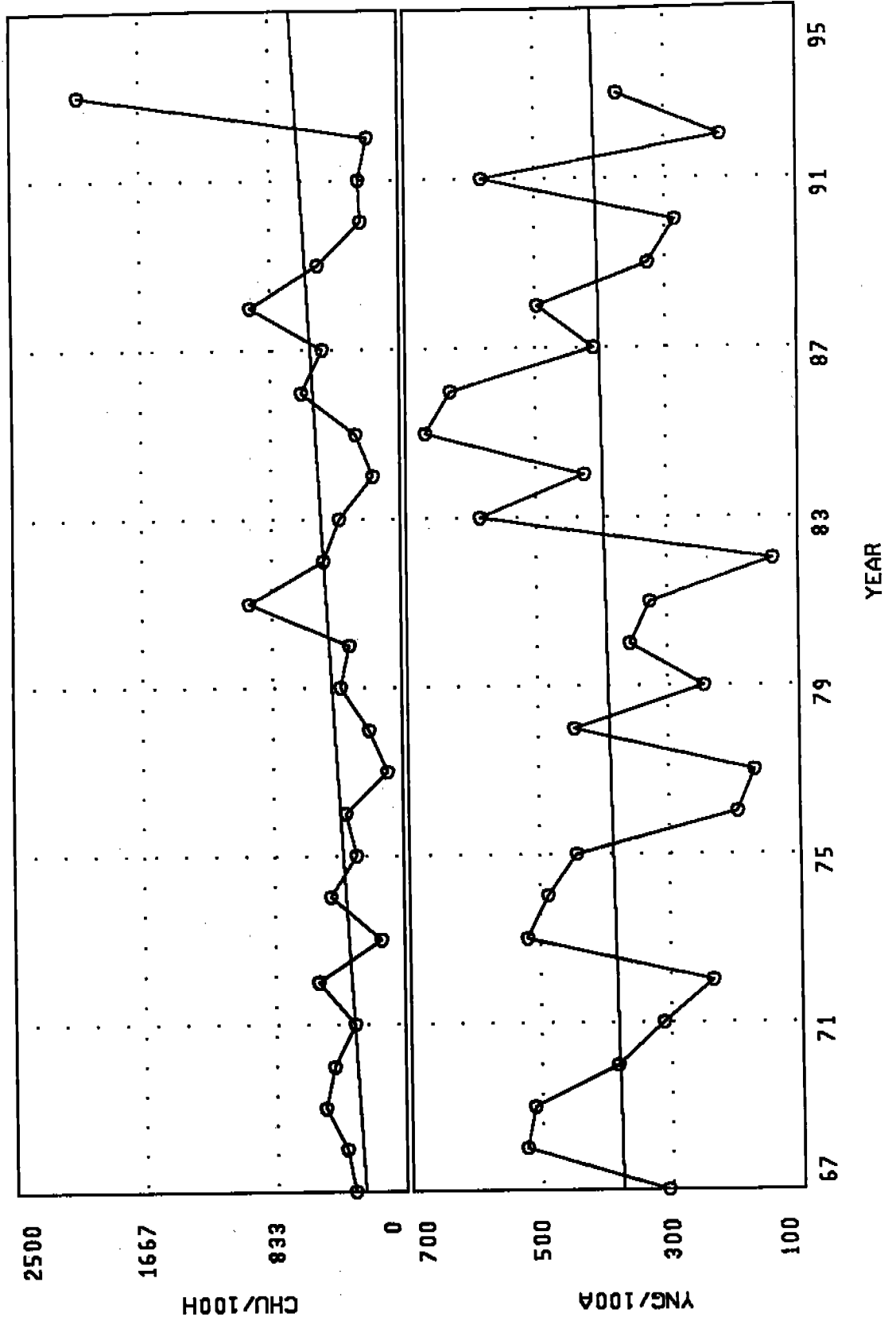
Harvest

Hunter Questionnaire

Results of the hunter questionnaire survey for 1993 are shown in Table 5. Long-term trends of chukars bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 6-8 and total statewide harvest statistics in Table 9 and Figures 2 and 3. Following is a comparison of 1993 harvest statistics to 1992 and the previous 35-year average:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Chukar hunters	10,128	-9	-27
Chukars harvested	18,774	-34	-52
Hunter-days afield	34,147	-9	-19
Chukars per hunter-day	0.55	-28	-39
Chukars per hunter	1.85	-28	-32

FIGURE 1. CHUKAR PRODUCTION INDICES, 1967-93.



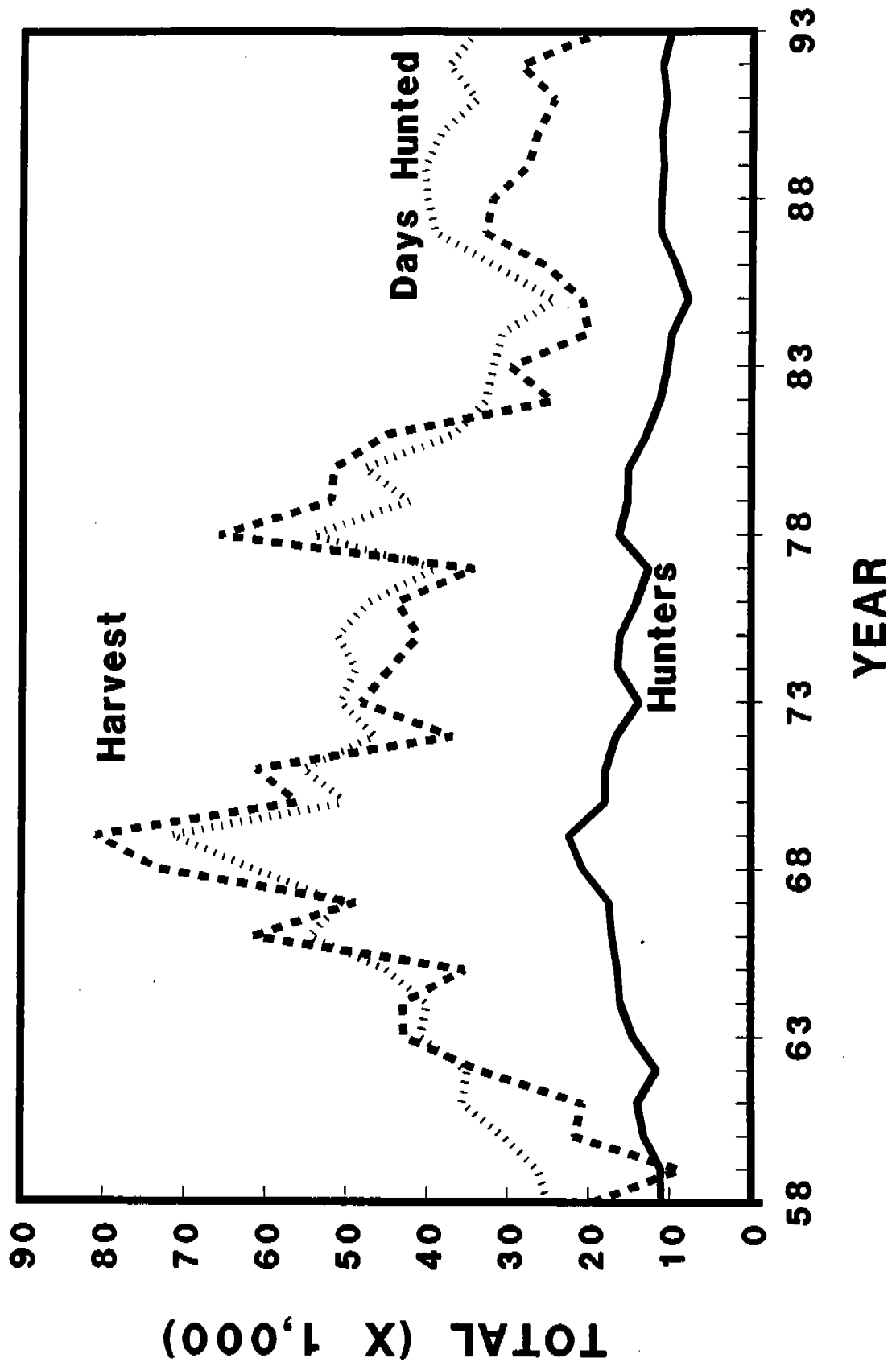


Figure 2. Statewide trends of chukar partridge harvest statistics, 1958-93.

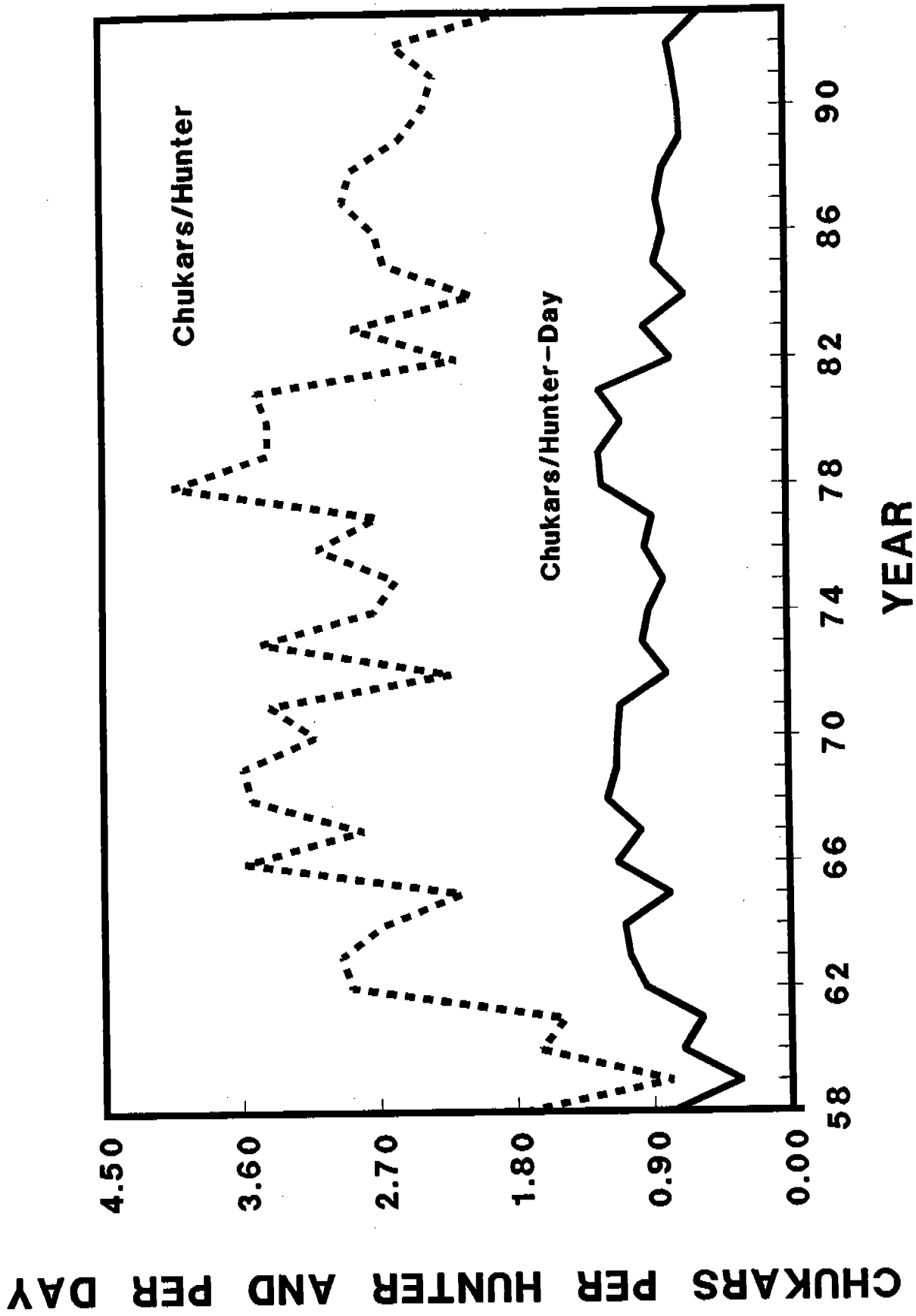
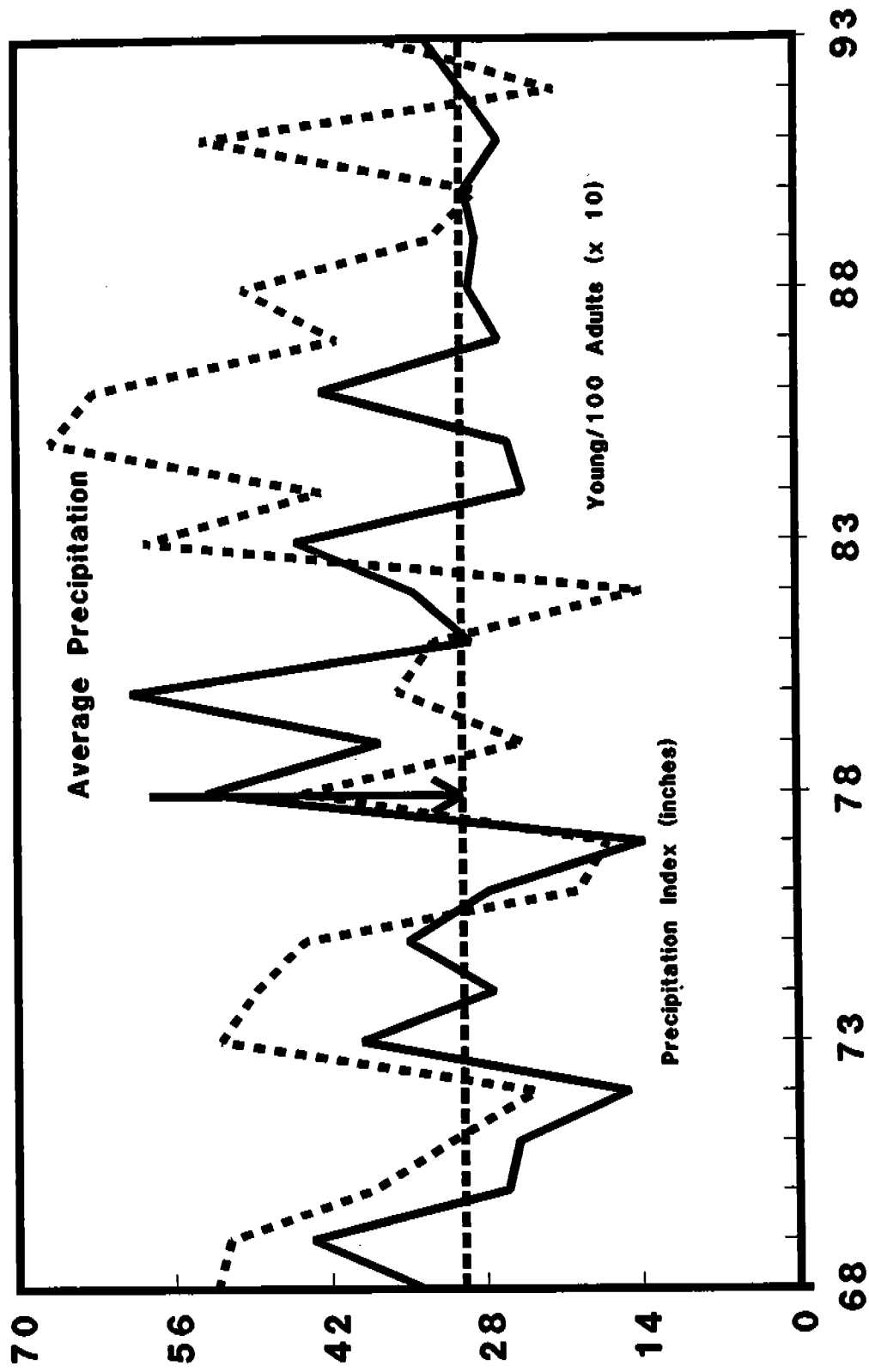


Figure 3. Statewide trends of chukar hunter success rates, 1958-93.

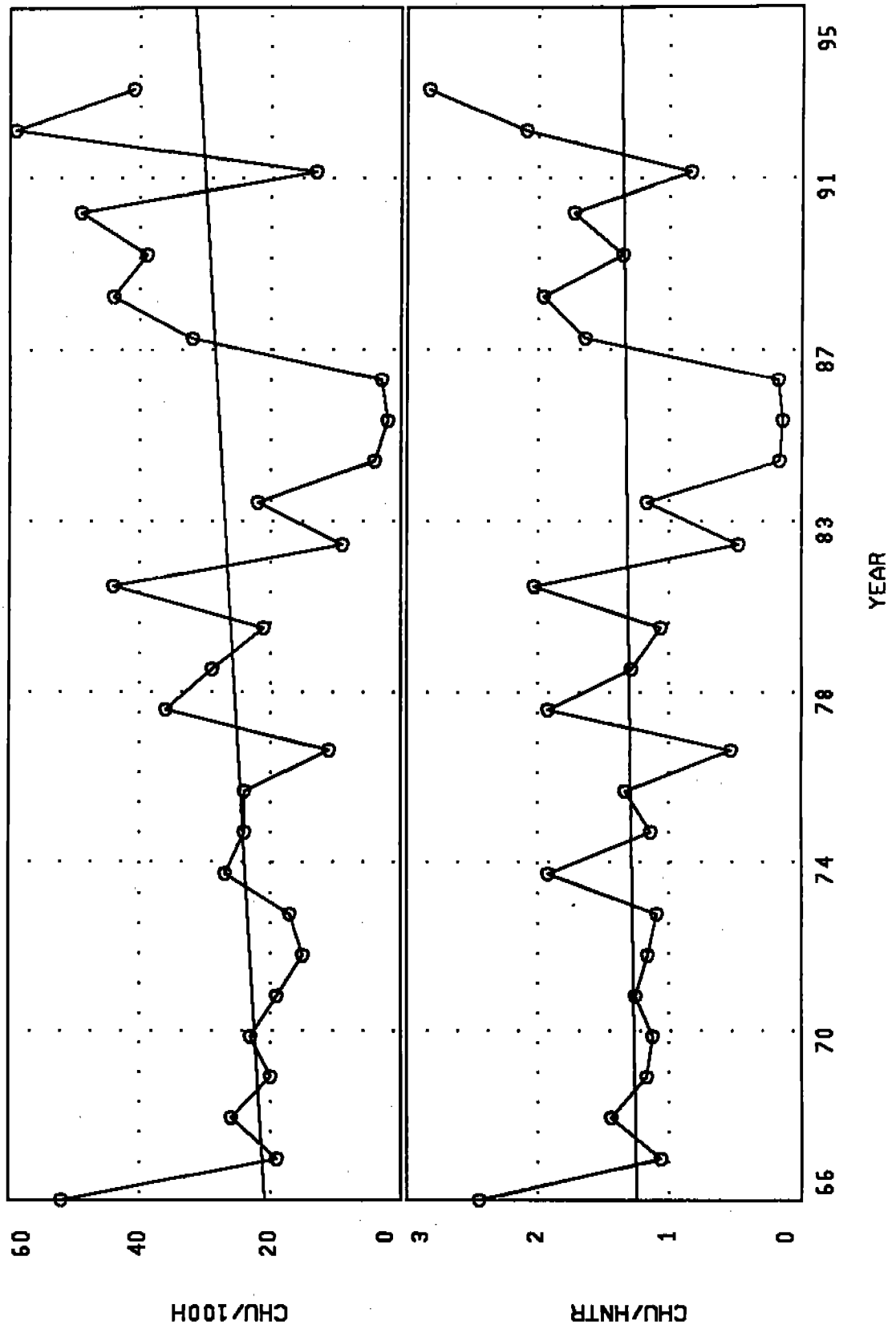
YOUNG/100 ADULTS & PRECIP. INDEX



YEAR

Figure 4. Relationship between late winter and early spring (Jan.-April) precipitation and chukar production, 1968-93.

FIGURES. CHUKAR FIELD BAG CHECK INDICES, 1966-93.



Chukar hunters and hunter effort decreased from 1992. Chukars per hunter-day decreased from 1992, and remains 39 percent below the statewide average. Total harvest decreased 34 percent. The Central Region again had the highest percentage of the harvest (43%) in 1993, and also had the highest percentage of hunter pressure (44%).

Field Bag Checks

A summary of field bag check data for 1993 is shown in Table 10. The hunter success trend determined by field bag checks since 1987 is shown in Table 11 and Figure 5. Data for the 1993 season compared to 1992 and the 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total hunters checked	11	-59	-94
Total hours hunted	63	-20	-93
Chukars per hunter (complete hunts)	2.36	+36	+151
Chukars bagged per 100 hours (complete hunts)	41	+31	+50
Average hours per hunter-day (complete hunts)	2.90	-1	-32
Hours hunted per chukar bagged (complete hunts)	2.42	+44	-83

Field bag check data sample sizes are too small to draw any conclusions.

Table 1. Chukar summer inventory, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Young & Adults		Adults w/o Young		Total Young	Total Chukars	Young/100 Adults	Hours of Effort		Birds/100 Hr
	#	Adults		Young	Adults	Young	Young				Adults	Vehicle Miles	
Northern Region													
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS													
Central Region													
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS													
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS													
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS													
Southeastern Region													
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	3	3	10	3.33	0	6	0	3	16	19	533	170	12
Grand	3	4	24	8.00	89	318	0	93	342	435	368	130	10
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS													
STATE TOTALS													
	6	7	34	5.67	89	324	0	96	358	454	373	300	22
	6	7	34	5.67	89	324	0	96	358	454	373	300	22
													22
													2,064

Table 2. Trend of chukar young per 100 adults, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993		
Northern Region													
Box Elder	--	--	4,200	700	283	136	--	--	--	--	--	--	
Cache	600	--	--	--	850	300	--	848	--	--	--	--	
Davis	--	--	--	--	24	--	--	400	--	300	--	--	
Morgan	750	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	262	--	4,200	560	125	117	--	675	--	46	--	--	1,075
Central Region													
Juab	--	800	--	739	600	462	120	587	367	1,000	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	1,000	767	--	--	
Tooele	--	436	550	566	535	484	263	157	443	300	--	--	
Utah	--	--	300	--	875	--	472	--	1,200	--	--	--	
Wasatch	800	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	800	481	457	642	591	468	240	266	533	650	--	--	513
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	125	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	550	927	--	--	--	--	--	
Plute	--	--	--	--	370	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	737	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	737	--	--	125	370	550	927	--	--	--	--	--	542
Northeastern Region													
Daggett	--	--	--	--	0	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	0	--	--	--	--	--	--	--	
Uintah	--	--	--	--	267	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	267	--	--	--	--	--	--	--	267
Southeastern Region													
Carbon	--	359	--	1,300	1,014	600	--	--	--	--	--	--	
Emery	--	--	--	--	500	--	--	243	--	156	533	--	
Grand	617	775	730	730	573	621	64	0	--	200	368	--	
San Juan	--	337	--	--	--	--	200	--	--	900	--	--	
REGIONAL TOTALS	617	392	408	287	631	620	93	131	--	195	373	375	
STATE TOTALS	586	426	670	631	411	496	327	285	533	215	373	458	

Table 3. Trend of average brood size for chukars, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	12.00	--	9.00	--	8.50	7.50	--	--	--	--	--	--	--	
Cache	6.00	--	--	--	--	6.00	--	13.50	--	--	--	--	--	
Davis	--	--	--	--	--	--	14.00	12.00	--	3.00	--	--	--	
Morgan	7.50	--	--	--	--	--	7.00	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	7.00	--	9.00	--	8.50	7.00	10.50	13.00	--	3.00	--	--	--	7.25
Central Region														
Juab	--	8.00	--	7.45	8.00	6.75	5.50	4.30	--	10.00	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	
Snapete	--	--	--	--	--	--	--	--	10.00	--	--	--	--	
Tooele	--	6.00	8.43	7.86	8.00	7.43	6.40	3.40	5.50	--	--	--	--	
Utah	--	--	10.00	--	10.50	--	3.00	--	12.00	--	--	--	--	
REGIONAL TOTALS	--	6.80	8.63	7.69	8.23	7.07	5.00	3.60	7.33	10.00	--	--	--	7.15
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	2.00	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	7.75	7.50	--	--	--	--	--	--	
Piute	--	--	--	--	5.00	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	5.00	7.75	7.50	--	--	--	--	--	--	6.75
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--	
Uintah	10.00	--	--	--	10.00	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	10.00	--	--	--	10.00	--	--	--	--	--	--	--	--	5.00
Southeastern Region														
Carbon	--	5.50	--	12.50	9.67	6.00	--	--	--	--	--	--	--	
Emery	--	--	5.00	--	5.00	--	--	8.50	--	18.00	3.33	--	--	
Grand	8.25	7.75	9.00	--	8.57	9.11	1.00	--	--	4.00	8.00	--	--	
San Juan	--	--	--	--	--	--	4.00	--	--	9.00	--	--	--	
REGIONAL TOTALS	8.25	7.00	7.67	10.40	8.25	8.95	2.50	8.50	--	10.33	5.67	7.98	--	
STATE TOTALS	8.00	6.91	8.46	8.13	7.93	8.00	5.65	5.50	7.33	7.83	5.67	7.37	--	

Table 4. Trend of chukars observed per 100 hours, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993		
Northern Region													
Box Elder	--	--	239	168	40	236	--	--	--	--	30	--	--
Cache	700	--	--	--	83	35	--	294	--	--	67	--	--
Davis	100	--	--	22	313	500	250	333	--	--	160	--	--
Morgan	850	--	--	--	--	--	500	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	227	--	155	102	91	311	135	295	--	70	--	--	148
Central Region													
Junb	--	200	--	2,611	850	913	500	229	200	200	122	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	733	2,600	--	--
Sanpete	--	--	--	--	--	--	--	--	--	475	400	--	--
Tooele	--	441	681	1,046	1,123	653	314	365	--	--	--	--	--
Utah	--	--	578	--	1,950	--	2,100	--	1,300	--	--	--	--
Wasatch	--	491	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	164	291	542	1,424	844	822	623	281	434	375	--	--	580
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	1,486	1,596	--	--	--	--	--	--
Piute	--	--	--	--	1,567	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	3,350	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	3,350	--	--	1,567	1,486	1,486	1,596	--	--	--	--	--	2,000
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	86	--	--	0	856	--	--	--	--	--	--	--	--
REGIONAL TOTALS	27	--	--	0	241	--	--	--	--	--	--	--	89
Southeastern Region													
Carbon	--	420	--	--	7,800	350	--	--	--	--	--	--	--
Emery	--	--	833	--	771	--	--	480	--	--	511	158	--
Grand	2,871	291	424	2,075	1,167	3,983	240	67	--	--	100	4,350	--
San Juan	--	1,750	--	--	--	--	225	--	--	--	200	--	--
REGIONAL TOTALS	2,871	858	530	2,075	1,335	3,293	225	150	--	258	2,064	1,288	--
STATE TOTALS	398	176	286	633	496	959	522	244	267	200	2,064	418	--

Table 5. Summary of chukar hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	83	4,104	1,501	0.37	12.02	8.00
CACHE	26	1,501	418	0.28	4.40	2.23
DAVIS	6	152	38	0.25	0.45	0.20
MORGAN	11	570	114	0.20	1.67	0.61
RICH	6	114	19	0.17	0.33	0.10
SUMMIT	6	475	171	0.36	1.39	0.91
WEBER	17	798	494	0.62	2.34	2.63
REGIONAL TOTALS	155	7,715	2,755	0.36	22.59	14.68
CENTRAL REGION						
JUAB	37	2,109	1,045	0.50	6.18	5.57
SALT LAKE	15	437	570	1.30	1.28	3.04
SANPETE	33	1,767	1,349	0.76	5.18	7.19
TOOELE	118	6,555	2,660	0.41	19.20	14.17
UTAH	86	3,895	2,052	0.53	11.41	10.93
WASATCH	5	266	437	1.64	0.78	2.33
REGIONAL TOTALS	294	15,031	8,114	0.54	44.02	43.22
SOUTHERN REGION						
BEAVER	8	437	209	0.48	1.28	1.11
GARFIELD	7	228	304	1.33	0.67	1.62
IRON	1	38	0	0.00	0.11	0.00
KANE	3	266	76	0.29	0.78	0.40
MILLARD	36	1,824	931	0.51	5.34	4.96
PIUTE	8	437	171	0.39	1.28	0.91
SEVIER	42	3,610	1,748	0.48	10.57	9.31
WASHINGTON	2	209	380	1.82	0.61	2.02
WAYNE	7	209	57	0.27	0.61	0.30
REGIONAL TOTALS	114	7,259	3,876	0.53	21.26	20.65
NORTHEASTERN REGION						
DAGGETT	2	57	57	1.00	0.17	0.30
DUCHESNE	12	817	418	0.51	2.39	2.23
UINTAH	3	152	57	0.38	0.45	0.30
REGIONAL TOTALS	17	1,026	532	0.52	3.01	2.83
SOUTHEASTERN REGION						
CARBON	9	304	171	0.56	0.89	0.91
EMERY	21	703	285	0.41	2.06	1.52
GRAND	23	1,463	2,356	1.61	4.29	12.55
SAN JUAN	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	53	2,470	2,812	1.14	7.23	14.98
UNKNOWN	10	646	684	1.06	1.89	3.64
STATE TOTALS	643	34,147	18,774	0.55	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 6. Summary of chukars bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.49	0.62	0.63	0.54	0.89	0.78	0.86	0.37
Cache	0.14	0.85	0.58	0.73	0.51	0.37	0.89	0.28
Davis	0.50	0.20	1.65	0.42	0.79	0.76	0.38	0.25
Morgan	0.00	1.33	1.08	0.56	0.71	0.54	0.41	0.20
Rich	0.00	1.00	1.43	0.70	1.67	0.32	0.33	0.17
Summit	0.00	1.25	0.68	0.20	2.14	0.14	0.33	0.36
Weber	0.00	0.44	0.45	1.07	0.73	0.84	0.66	0.62
REGIONAL TOTALS	0.39	0.64	0.69	0.58	0.82	0.69	0.76	0.36
<u>Central Region</u>								
Juab	0.87	1.10	0.90	0.66	0.73	0.87	0.77	0.50
Salt Lake	1.08	1.16	0.69	1.05	1.16	1.68	1.08	1.30
Sanpete	0.88	0.58	1.26	1.06	1.35	0.83	0.77	0.76
Tooele	0.90	0.84	0.82	0.69	0.77	0.70	0.76	0.41
Utah	0.65	0.71	0.64	0.78	0.67	0.79	0.65	0.53
Wasatch	0.00	0.83	1.00	0.60	0.67	0.50	0.32	1.64
REGIONAL TOTALS	0.84	0.86	0.83	0.78	0.81	0.79	0.73	0.54
<u>Southern Region</u>								
Beaver	0.13	0.63	0.35	0.50	0.42	0.67	0.28	0.48
Garfield	0.33	0.40	1.13	0.63	0.00	2.50	0.00	1.33
Iron	0.00	0.00	0.00	0.00	0.25	0.18	0.44	0.00
Kane	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.29
Millard	1.88	1.09	0.95	0.57	0.62	0.55	1.35	0.51
Piute	0.13	0.81	0.30	0.54	0.29	1.00	0.18	0.39
Sevier	0.48	0.57	0.67	0.47	0.51	0.72	0.67	0.48
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.82
Wayne	0.00	2.00	1.83	0.27	0.00	1.80	0.20	0.27
REGIONAL TOTALS	0.92	0.82	0.72	0.50	0.45	0.68	0.73	0.53
<u>Northeastern Region</u>								
Daggett	0.00	3.00	0.00	0.00	0.00	0.00	0.00	1.00
Duchesne	0.00	0.20	2.12	0.73	0.27	0.19	1.86	0.51
Uintah	0.00	1.68	0.69	2.14	0.09	0.79	0.75	0.38
REGIONAL TOTALS	0.00	1.44	1.42	1.81	0.17	0.38	0.95	0.52
<u>Southeastern Region</u>								
Carbon	0.89	0.87	1.29	0.42	0.16	0.46	1.25	0.56
Emery	0.74	0.90	0.95	0.29	0.50	0.43	0.88	0.41
Grand	1.57	1.19	1.26	0.92	0.56	0.38	3.40	1.61
San Juan	0.86	1.67	0.50	0.00	0.00	0.50	0.00	0.00
REGIONAL TOTALS	1.05	1.07	1.03	0.50	0.39	0.44	1.24	1.14
Unknown Counties	0.00	0.00	0.00	1.00	0.00	0.00	0.20	1.06
STATE TOTALS	0.80	0.84	0.80	0.68	0.69	0.72	0.76	0.55

Table 7. Percentage distribution of chukar harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	7.64	10.59	10.15	13.21	18.42	23.43	17.49	8.00
Cache	0.24	1.64	2.29	4.05	4.43	1.93	4.73	2.23
Davis	0.16	0.07	1.71	0.83	0.85	1.57	1.56	0.20
Morgan	0.00	0.29	0.67	1.43	0.93	1.36	0.93	0.61
Rich	0.00	0.07	0.52	0.53	1.17	0.64	0.19	0.10
Summit	0.00	0.37	0.88	0.08	1.17	0.14	0.06	0.91
Weber	0.00	0.59	0.26	1.13	1.48	1.93	1.31	2.63
REGIONAL TOTALS	8.04	13.65	16.51	21.25	28.44	31.00	26.26	14.68
<u>Central Region</u>								
Juab	7.89	12.68	7.18	5.33	5.13	8.57	6.97	5.57
Salt Lake	3.33	4.32	1.87	3.15	2.87	3.00	5.10	3.04
Sanpete	4.72	2.83	7.96	9.83	8.08	6.07	4.73	7.19
Tooele	27.07	20.44	24.63	19.67	28.21	15.29	17.67	14.17
Utah	9.02	9.77	9.06	15.09	10.26	16.86	15.99	10.93
Wasatch	0.00	0.37	0.20	0.23	0.16	0.93	0.37	2.33
REGIONAL TOTALS	52.03	50.44	50.93	53.30	54.70	50.71	50.84	43.22
<u>Southern Region</u>								
Beaver	0.16	1.41	1.09	1.05	2.18	3.00	0.44	1.11
Garfield	0.24	0.14	0.46	0.75	0.00	0.36	0.00	1.62
Iron	0.00	0.00	0.00	0.00	0.31	0.14	0.25	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.40
Millard	18.78	13.13	8.22	4.65	3.11	3.21	5.48	4.96
Piute	0.40	1.26	0.52	1.13	0.85	1.00	0.19	0.91
Sevier	5.93	5.67	8.80	5.26	4.74	5.79	7.47	9.31
Washington	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.02
Wayne	0.00	0.14	0.57	0.30	0.00	0.64	0.06	0.30
REGIONAL TOTALS	25.53	21.79	19.68	13.14	11.19	14.36	13.88	20.65
<u>Northeastern Region</u>								
Daggett	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.30
Duchesne	0.00	0.07	1.87	0.60	0.78	0.43	0.81	2.23
Uintah	0.00	2.38	0.57	5.78	0.16	0.79	1.49	0.30
REGIONAL TOTALS	0.00	2.68	2.44	6.38	0.93	1.21	2.30	2.83
<u>Southeastern Region</u>								
Carbon	2.60	0.97	0.93	1.13	0.62	0.86	1.87	0.91
Emery	4.15	3.20	7.18	1.35	3.73	1.14	2.68	1.52
Grand	7.15	6.86	2.23	2.70	0.39	0.36	2.12	12.55
San Juan	0.49	0.37	0.05	0.00	0.00	0.36	0.00	0.00
REGIONAL TOTALS	14.39	11.41	10.41	5.18	4.74	2.71	6.66	14.98
Unknown Counties	0.00	0.00	0.00	0.75	0.00	0.00	0.06	3.64
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 8. Percentage distribution of chukar hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	12.36	14.35	12.95	16.59	14.18	21.53	15.42	12.02
Cache	1.43	1.63	3.16	3.80	5.94	3.73	4.03	4.40
Davis	0.26	0.31	0.83	1.34	0.75	1.48	3.13	0.45
Morgan	0.91	0.18	0.49	1.75	0.91	1.79	1.76	1.67
Rich	0.07	0.06	0.29	0.51	0.48	1.43	0.43	0.33
Summit	0.07	0.25	1.04	0.26	0.37	0.72	0.14	1.39
Weber	1.50	1.12	0.45	0.72	1.39	1.64	1.52	2.34
REGIONAL TOTALS	16.59	17.93	19.24	24.96	24.02	32.33	26.42	22.59
<u>Central Region</u>								
Juab	7.22	9.65	6.41	5.55	4.87	7.06	6.93	6.18
Salt Lake	2.47	3.13	2.16	2.05	1.71	1.28	3.61	1.28
Sanpete	4.29	4.13	5.03	6.37	4.12	5.27	4.70	5.18
Tooele	24.14	20.50	24.07	19.62	25.25	15.70	17.84	19.20
Utah	11.13	11.53	11.32	13.20	10.59	15.24	18.88	11.41
Wasatch	0.20	0.37	0.16	0.26	0.16	1.33	0.90	0.78
REGIONAL TOTALS	49.45	49.34	49.18	47.05	46.71	45.88	52.85	44.02
<u>Southern Region</u>								
Beaver	0.98	1.88	2.49	1.44	3.53	3.22	1.19	1.28
Garfield	0.59	0.31	0.33	0.82	0.59	0.10	0.28	0.67
Iron	0.00	0.00	0.00	0.36	0.86	0.56	0.43	0.11
Kane	0.26	0.06	0.00	0.00	0.05	0.10	0.00	0.78
Millard	8.00	10.09	6.95	5.60	3.48	4.19	3.08	5.34
Piute	2.47	1.31	1.37	1.44	2.03	0.72	0.81	1.28
Sevier	9.95	8.33	10.53	7.60	6.37	5.73	8.49	10.57
Washington	0.00	0.12	0.00	0.00	0.27	0.20	0.05	0.61
Wayne	0.00	0.06	0.24	0.77	0.05	0.26	0.24	0.61
REGIONAL TOTALS	22.25	22.19	21.94	18.03	17.23	15.09	14.56	21.26
<u>Northeastern Region</u>								
Daggett	0.00	0.06	0.00	0.00	0.59	0.00	0.00	0.17
Duchesne	0.00	0.31	0.70	0.56	1.98	1.59	0.33	2.39
Uintah	0.78	1.19	0.66	1.85	1.18	0.72	1.52	0.45
REGIONAL TOTALS	0.78	1.56	1.37	2.41	3.75	2.30	1.85	3.01
<u>Southeastern Region</u>								
Carbon	2.34	0.94	0.58	1.85	2.68	1.33	1.14	0.89
Emery	4.49	3.00	6.03	3.18	5.14	1.89	2.32	2.06
Grand	3.64	4.82	1.41	2.00	0.48	0.66	0.47	4.29
San Juan	0.46	0.18	0.08	0.00	0.00	0.51	0.14	0.00
REGIONAL TOTALS	10.93	8.96	8.11	7.04	8.29	4.40	4.08	7.23
Unknown Counties	0.00	0.00	0.12	0.51	0.00	0.00	0.24	1.89
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 9. Statewide summary of chukar partridge harvest statistics, 1958-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Chukars Per Hunter-Day	Chukars Per Hunter
1958	11,124	19,578	25,100	0.78	1.76
1959	11,154	8,700	26,364	0.33	0.78
1960	13,252	21,733	30,610	0.71	1.64
1961	14,046	20,821	35,675	0.58	1.48
1962	11,638	33,500	35,010	0.95	2.88
1963	14,532	42,806	40,824	1.05	2.95
1964	16,090	42,974	39,971	1.08	2.67
1965	16,431	35,335	45,067	0.78	2.15
1966	17,133	61,370	54,448	1.13	3.58
1967	17,485	48,906	50,671	0.97	2.80
1968	20,744	73,218	61,402	1.19	3.53
1969	22,529	80,917	71,674	1.13	3.59
1970	18,013	56,053	49,911	1.12	3.11
1971	17,917	61,151	55,378	1.10	3.41
1972	16,685	36,925	46,502	0.79	2.21
1973	13,888	48,135	50,677	0.95	3.47
1974	16,412	44,658	48,856	0.91	2.72
1975	16,156	41,151	51,083	0.81	2.57
1976	14,171	43,726	47,143	0.93	3.09
1977	12,691	34,155	38,873	0.88	2.69
1978	16,291	65,747	54,239	1.21	4.04
1979	15,210	51,918	42,254	1.23	3.41
1980	15,100	51,511	47,778	1.08	3.41
1981	12,907	44,983	36,662	1.23	3.49
1982	11,326	24,460	32,691	0.75	2.16
1983	10,418	29,649	31,904	0.93	2.85
1984	9,846	20,179	30,715	0.66	2.05
1985	7,930	20,938	24,346	0.86	2.64
1986	9,397	25,346	31,672	0.80	2.70
1987	11,276	32,848	39,099	0.84	2.91
1988	11,237	32,057	40,088	0.80	2.85
1989	10,910	27,628	40,384	0.68	2.53
1990	11,195	26,486	38,463	0.69	2.37
1991	10,577	24,355	34,010	0.72	2.30
1992	11,125	28,599	37,463	0.76	2.57
1993	10,128	18,774	34,147	0.55	1.85
Totals					
(1958-93)	496,964	1,381,290	1,501,154	--	--
Averages					
(1958-92)	13,910	38,929	41,914	0.90	2.72

Table 10. Chukar field bag check summary, 1993.

Region and County	All Hunts										
	Total Parties	Total Hunters	Total Hours	Total Birds	Birds/100 Hr	Complete Hunts	Total Hunters	Total Hours	Total Birds	Birds/100 Hr	Birds/Hunter
Northern Region											
Box Elder	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	16	45	180	91	51	5	11	63	26	41	2.36
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
STATE TOTALS											
	16	45	180	91	51	5	11	63	26	41	2.36
	16	45	180	91	51	5	11	63	26	41	2.36

Table 11. Chukar hunter success trend as determined by field bag check, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter
Northern Region												
Box Elder	13	0.43	50	2.50	133	4.00	--	--	--	--	--	--
Cache	52	2.00	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	23	0.82	50	2.50	133	4.00	--	--	--	--	--	--
Central Region												
Juab	75	2.57	95	1.90	116	7.00	67	2.00	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	53	1.25	--	--	--	--
Tooele	67	1.71	2	0.09	--	--	1	0.07	--	--	--	--
Utah	--	--	50	1.00	10	2.00	67	2.00	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	73	2.29	31	1.00	48	1.36	13	0.70	--	--	--	--
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	38	1.50	--	--	--	--	--	--
Uintah	87	3.71	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	87	3.71	--	--	38	1.50	--	--	--	--	--	--
Southeastern Region												
Carbon	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	133	4.00	33	1.00	--	--	59	1.74	--	--
Grand	49	2.54	75	1.50	--	--	--	--	--	--	41	2.36
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	49	2.54	100	2.30	33	1.00	--	--	59	1.74	41	2.36
STATE TOTALS	44	1.63	39	1.13	49	1.44	13	0.70	59	1.74	41	2.36

SAGE GROUSE

SUMMARY

Strutting ground surveys indicated a decrease in the average male grouse attendance from 1992.

Brood surveys showed decreased production per adult hen throughout the state. Birds observed per 100 hours decreased 55 percent from 1992, and was 58 percent below average. However, the ratio of young to adults increased 120 percent compared to 1992, and was 45 percent above average.

The decrease in production, as indicated from brood counts, in 1993, was apparent in harvest statistics collected from questionnaires and from field bag checks. Harvest was 16 percent below the 42-year average. Age ratios derived from wings indicated a 45 percent increase in young per 100 adults and was 6 percent above average. However, young per adult hen decreased 31 percent and remains 48 percent below the long-term average.



Strutting Ground Counts

The status of the sage grouse breeding population for 1993, as indicated by strutting ground counts, is shown in Table 1 and Figure 1 of this section. Results of this survey for 1993 compared to 1992 and the 1967-92 average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Number of grounds counted	90	-28	-17
Total male grouse counted	1,122	-45	-45
Average male grouse per ground	12	-25	-35
Percent change from previous year (comparable grounds)	--		

Access for spring 1993 strutting ground counts was generally poor in most regions of the state. The numbers of male grouse observed decreased 45 percent statewide. Loss of habitat continues to be the trend in many areas of the state.

Brood Counts

Results of the summer inventory survey for 1993 are found in Table 2. Long-term trends of young per adult ratios, mean brood size and sage grouse observed per 100 hours are shown in Tables 3-5 and Figure 2. Indices for 1993 are compared to 1992 and the previous 10-year (1983-92) average as follows:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total sage grouse counted	170	-76	-84
Young per 100 adults	209	+120	+45
Mean brood size	3.68	-13	-16
Sage grouse observed per 100 hours	122	-55	-58
Total hours effort	140	-46	-62

The effort devoted to sage grouse brood counts was 62 percent below average, and the total number of grouse counted was 84 percent below average.

Sage grouse density decreased in 1993, while production of young per 100 adults increased 120 percent. The average brood size was 16 percent below the 10-year average.

FIGURE 1. SAGE GROUSE STRUTTING
GROUND COUNTS, 1959-93

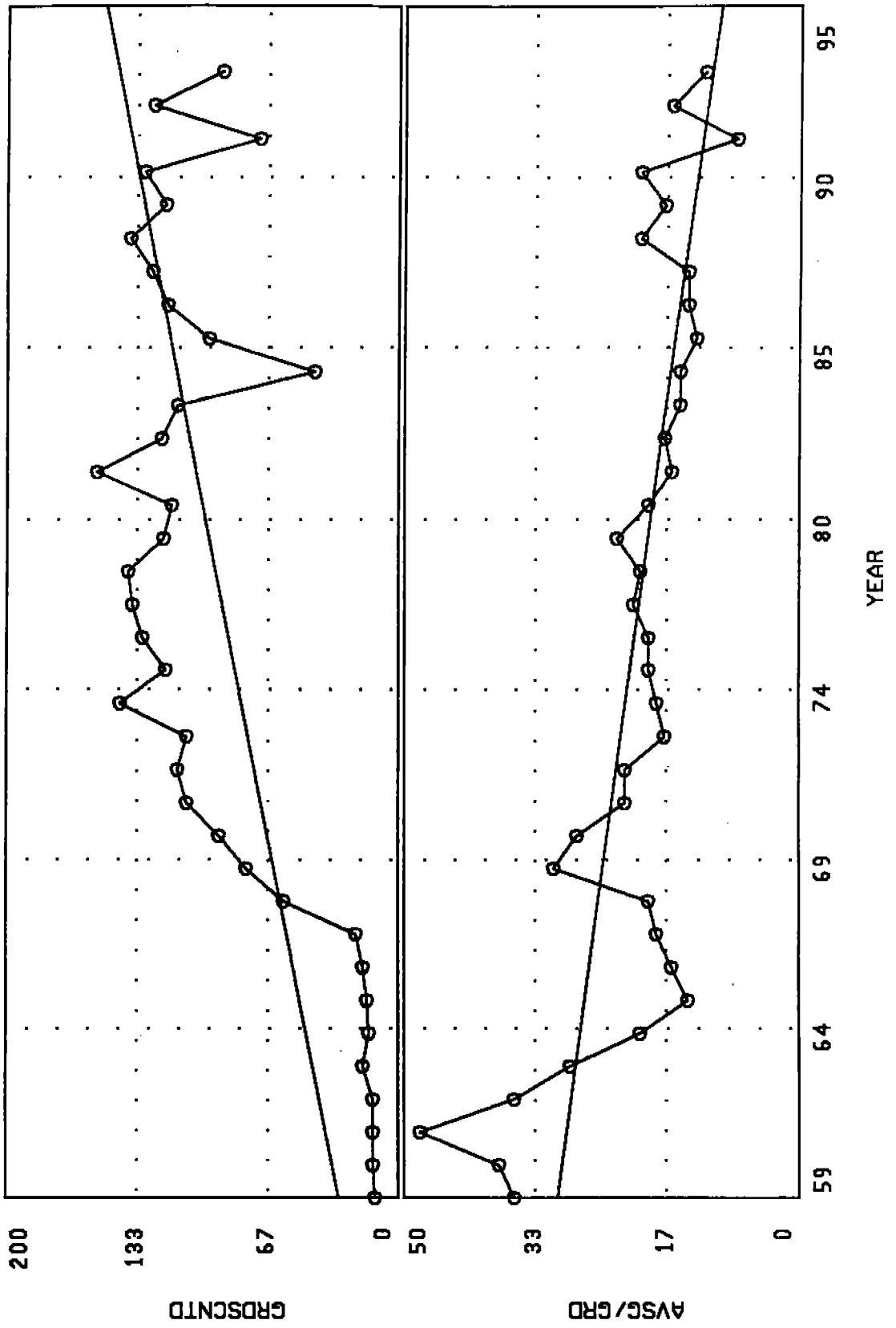
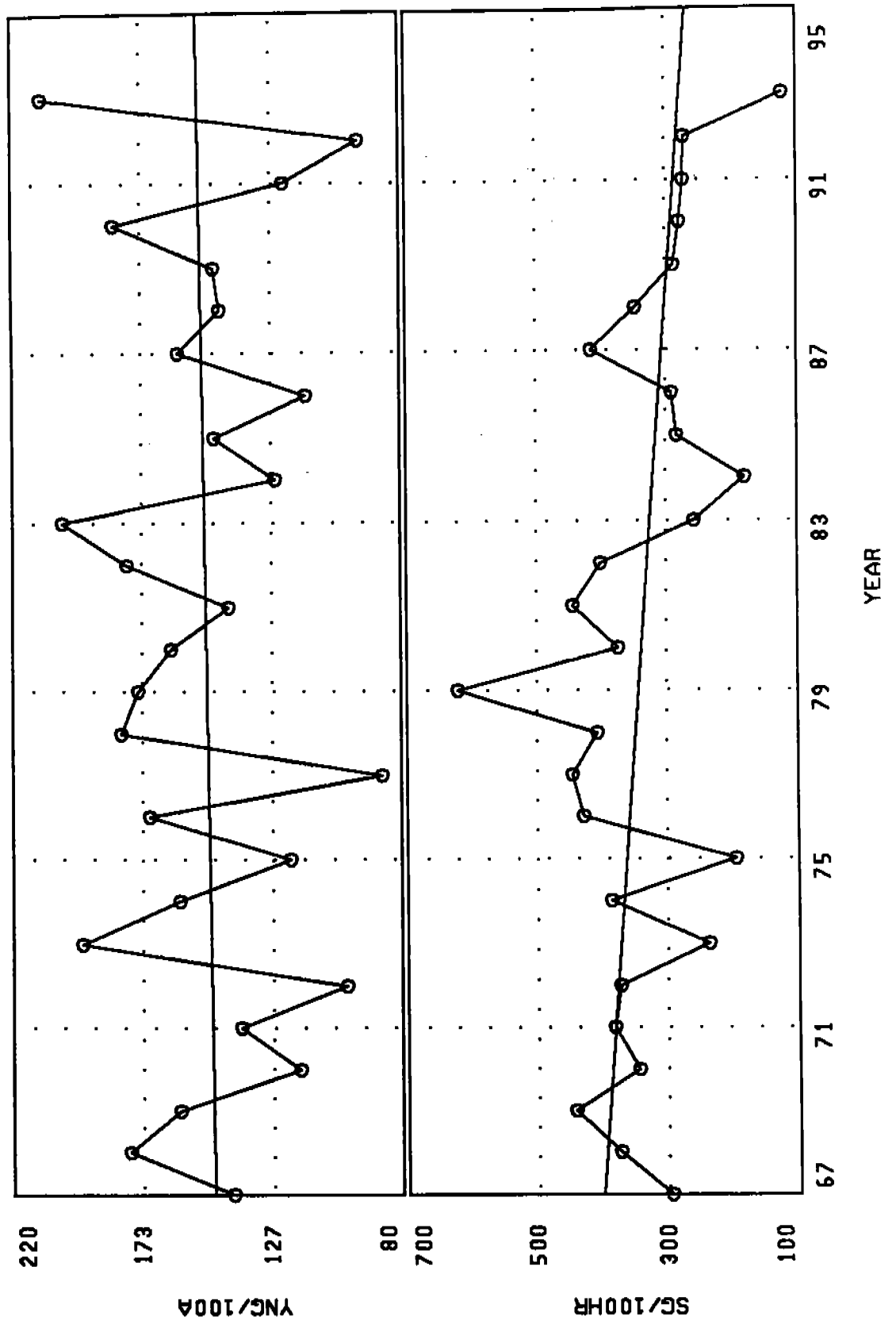


FIGURE 2. SAGE GROUSE PRODUCTION INDICES, 1967-93.



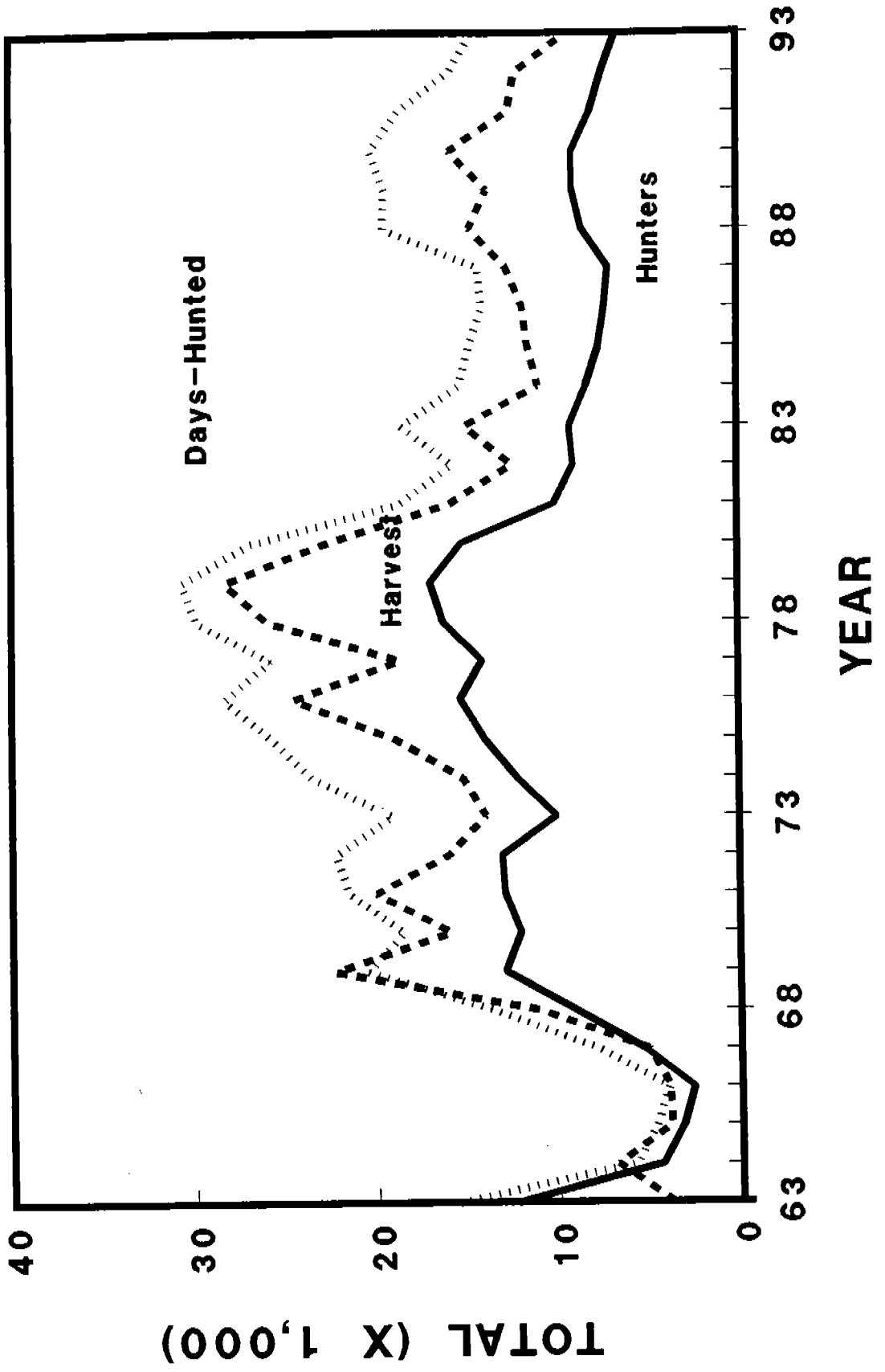


Figure 3. Statewide trends of sage grouse harvest statistics, 1963-93.

SAGE GROUSE PER HUNTER AND PER DAY

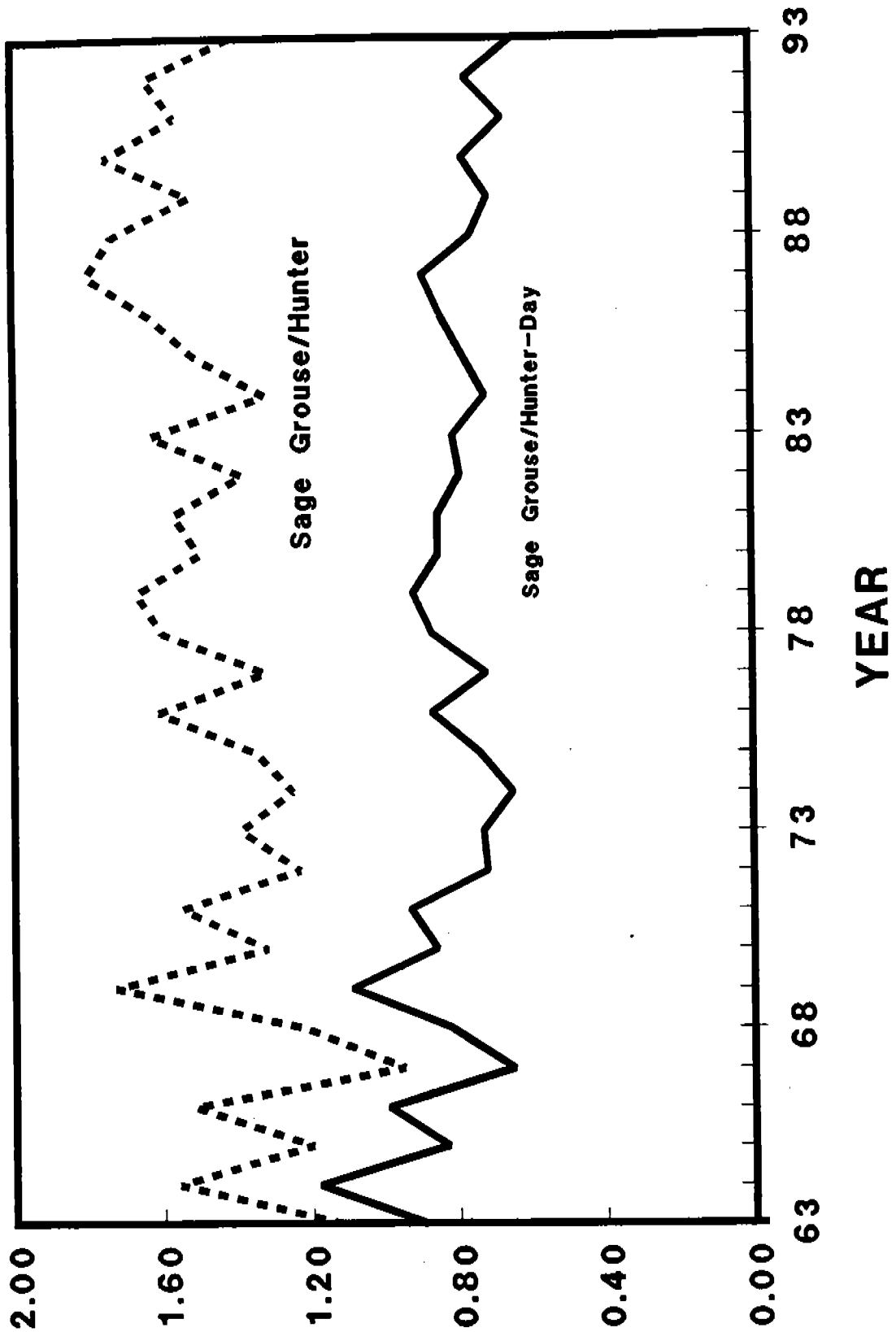
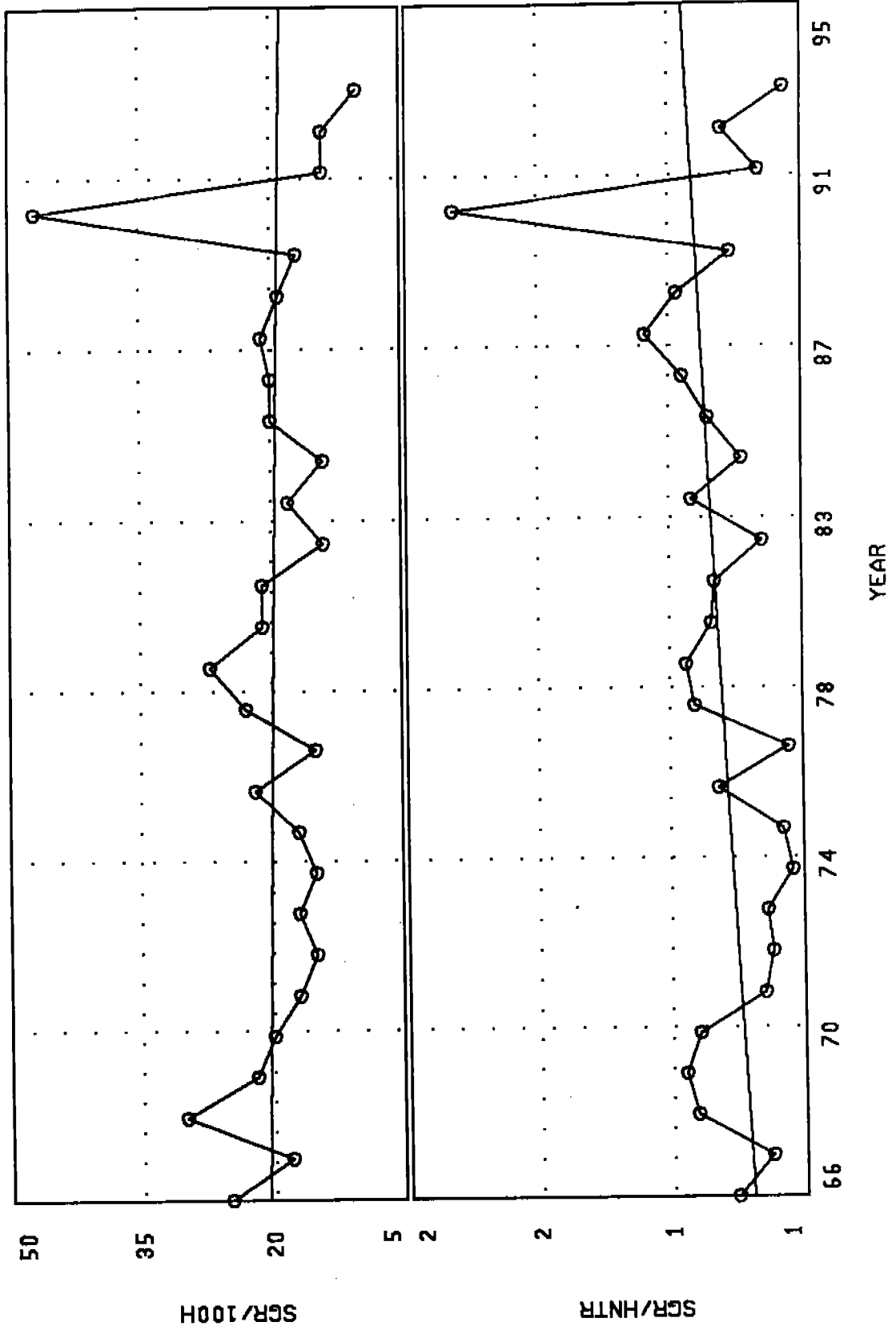


Figure 4. Statewide trends of sage grouse hunter success rates, 1963-93.

FIGURES. SAGE GROUSE FIELD BAG
CHECK INDICES, 1966-93.



Harvest

Hunter Questionnaire

Results of the 1993 hunter questionnaire are shown in Table 6. Long-term trends of sage grouse bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 7-9 and total statewide harvest statistics in Table 10. The results of the 1993 hunting season compared to 1992 and the previous 43-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Sage grouse hunters	6,594	-11	-11
Sage grouse harvested	9,311	-23	-16
Hunter-days afield	14,480	-8	+10
Sage grouse per hunter-day	0.64	-17	+4
Sage grouse per hunter	1.41	-14	-23

Sage grouse per hunter-day success rate decreased 17 percent in 1993. Total statewide harvest decreased 23 percent, and there was an 11 percent decrease in total sage grouse hunters. Thirty-nine percent of the harvest and 42 percent of the hunting pressure still occurred in the Northern region.

Long-term sage grouse harvest trends are shown in Figures 3 and 4.

Field Bag Checks

A summary of field bag check data for 1993 is shown in Table 11. Hunter success trends determined via this method are shown in Table 12 and Figure 5. Results of the 1993 survey compared to 1992 and the 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total hunters checked	414	-28	-58
Total hours hunted	2,763	-24	-42
Sage grouse per hunter (complete hunts)	0.66	-25	-36
Sage grouse bagged per 100 hours	10	-29	-49
Average hours per hunter-day (complete hunts)	6.67	+5	+27
Hours hunted per grouse bagged (complete hunts)	10.16	+40	+81

Hunter success rates from field bag checks showed decreased success for 1993 and more time was spent afield per grouse bagged.

Sex and Age Composition of the Harvest

A summary of the sex and age composition of harvested sage grouse in 1993 is found in Table 13 and the trend from 1990-93 in Table 14.

Following are data derived from wing surveys in 1993 compared to 1992 and the 1983-92 average:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Sample size	620	-33	-30
Percent males	35	-15	-14
Percent females	65	+10	+10
Young per 100 adults	155	+45	+6
Young per 100 hens (adult)	116	-31	-48

Analysis of wings collected at checking stations during the 1993 season indicates that statewide production was down 48 percent compared to 1992, and was below the long-term average.

Table 1. Summary of sage grouse strutting ground counts by region and county, 1983-93.

Region and County	Year												
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993		
Northern Region													
Box Elder													
No. Strutting Grounds Counted	17	8	32	10	18	15	11	20	16	13	8		
Total Male Grouse Counted	322	216	309	288	314	419	343	327	--	307	250		
County Average (all strutting grounds)	19	27	10	29	18	28	31	23	21	24	17		
% Change From Previous Year - Comparable Grounds	-29	-8	7	17	-12	33	-3	-17	-11	8	-7		
Cache													
No. Strutting Grounds Counted	0	1	0	2	1	1	2	--	--	3	--		
Total Male Grouse Counted	0	5	--	8	0	9	15	--	--	27	--		
County Average (all strutting grounds)	--	5	--	4	0	9	8	--	--	9	--		
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	100	40	--	--	--	--		
Morgan													
No. Strutting Grounds Counted	3	1	3	3	2	1	--	--	--	1	--		
Total Male Grouse Counted	31	2	33	22	26	19	--	--	--	39	--		
County Average (all strutting grounds)	10	2	11	7	13	19	--	--	--	39	--		
% Change From Previous Year - Comparable Grounds	-31	-91	1,000	-33	18	-21	--	--	--	--	--		
Rich													
No. Strutting Grounds Counted	9	6	18	11	12	3	6	19	22	14	14		
Total Male Grouse Counted	188	103	399	296	431	319	281	863	710	372	314		
County Average (all strutting grounds)	21	17	22	27	36	53	47	41	32	27	19		
% Change From Previous Year - Comparable Grounds	2	-2	49	-28	53	-10	5	-7	-18	-38	-51		
Summit													
No. Strutting Grounds Counted	7	1	0	7	7	10	--	--	--	3	--		
Total Male Grouse Counted	46	16	--	23	25	17	--	--	--	0	--		
County Average (all strutting grounds)	7	16	--	3	4	2	--	--	--	--	--		
% Change From Previous Year - Comparable Grounds	-9	78	--	--	-65	-32	--	--	--	--	--		
REGIONAL TOTALS													
No. Strutting Grounds Counted	36	17	53	33	40	33	19	39	38	34	22		
Total Male Grouse Counted	587	342	741	637	806	783	639	1,190	710	745	564		
Average Grouse Per Ground (all strutting grounds)	16	20	14	19	20	24	34	31	27	26	18		
% Change From Previous Year - Comparable Grounds	-22	-9	27	-8	16	11	5	--	-15	-15	-29		

Table 1 (continued)

Region and County	Year											
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Central Region												
Juab												
No. Strutting Grounds Counted	--	--	--	--	1	1	1	1	1	1	3	3
Total Male Grouse Counted	--	--	--	--	9	14	11	4	15	5	0	0
County Average (all strutting grounds)	--	--	--	--	9	14	11	4	15	2	0	0
% Change From Previous Year - Comparable Grounds	--	--	--	--	0	56	-21	-63	--	-100	-100	-100
Sanpete												
No. Strutting Grounds Counted	2	2	2	2	2	2	2	2	2	2	--	2
Total Male Grouse Counted	8	0	0	0	0	0	0	0	0	0	--	0
County Average (all strutting grounds)	4	--	--	--	--	0	0	0	0	--	--	0
% Change From Previous Year - Comparable Grounds	-27	-100	0	0	0	0	0	0	0	--	--	0
Tooele												
No. Strutting Grounds Counted	6	6	6	6	5	5	5	5	5	5	4	4
Total Male Grouse Counted	28	23	55	82	96	89	77	91	82	100	100	11
County Average (all strutting grounds)	5	4	9	16	19	18	15	18	16	25	25	5
% Change From Previous Year - Comparable Grounds	0	-18	139	149	17	-5	-17	20	-15	32	-87	-87
Wasatch												
No. Strutting Grounds Counted	2	2	2	2	2	2	2	2	2	2	2	2
Total Male Grouse Counted	54	57	63	117	54	52	44	51	11	49	45	45
County Average (all strutting grounds)	27	29	32	59	27	26	22	26	6	24	37	37
% Change From Previous Year - Comparable Grounds	200	6	11	205	-54	-4	-19	18	-75	300	-9	-9
REGIONAL TOTALS												
No. Strutting Grounds Counted	10	10	10	10	7	10	10	10	10	9	11	11
Total Male Grouse Counted	90	80	118	199	150	155	132	146	108	154	56	56
Average Grouse Per Ground (all strutting grounds)	9	8	12	18	17	16	13	15	12	17	14	14
% Change From Previous Year - Comparable Grounds	58	-11	48	170	-25	-3	-16	11	-45	77	-65	-65

Table 1 (continued)

Region and County	Year											
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Southern Region												
Beaver												
No. Strutting Grounds Counted	7	4	3	4	4	3	5	2	--	3	1	
Total Male Grouse Counted	117	48	45	55	52	46	71	33	--	68	49	
County Average (all strutting grounds)	17	12	15	14	13	15	14	16	41	19	49	
% Change From Previous Year - Comparable Grounds	-11	78	--	22	-5	--	-7	--	--	-54	47	
Garfield												
No. Strutting Grounds Counted	8	7	--	8	9	8	8	10	--	9	6	
Total Male Grouse Counted	197	133	--	152	175	251	126	244	--	211	77	
County Average (all strutting grounds)	25	19	--	19	19	31	16	24	35	23	11	
% Change From Previous Year - Comparable Grounds	-12	-46	--	13	0	24	-50	--	--	-23	-50	
Iron												
No. Strutting Grounds Counted	4	--	5	6	4	6	6	3	--	2	1	
Total Male Grouse Counted	105	--	81	131	64	111	127	50	--	43	41	
County Average (all strutting grounds)	26	--	16	22	16	19	21	20	52	21	41	
% Change From Previous Year - Comparable Grounds	27	--	--	49	-11	-13	14	--	--	-36	24	
Kane												
No. Strutting Grounds Counted	--	--	--	--	--	--	2	--	--	3	2	
Total Male Grouse Counted	--	--	--	--	--	--	41	--	--	30	11	
County Average (all strutting grounds)	--	--	--	--	--	--	21	--	14	10	5.5	
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	--	--	--	--	-28	-61	
Millard												
No. Strutting Grounds Counted	--	1	1	1	--	--	--	--	--	--	--	
Total Male Grouse Counted	--	4	2	3	--	--	--	--	--	--	--	
County Average (all strutting grounds)	--	4	2	3	--	--	--	--	--	--	--	
% Change From Previous Year - Comparable Grounds	--	--	--	33	--	--	--	--	--	--	--	
Sevier												
No. Strutting Grounds Counted	--	--	--	2	--	2	--	--	1	3	--	
Total Male Grouse Counted	--	--	--	0	--	0	--	--	20	22	--	
County Average (all strutting grounds)	--	--	--	--	--	--	--	--	20	7	--	
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	--	--	--	--	--	--	
Wayne												
No. Strutting Grounds Counted	1*	(12)*	--	13	13	13	13	10	16	12	--	
Total Male Grouse Counted	123	(89)	--	120	182	326	268	259	367	289	--	
County Average (all strutting grounds)	123	(7)	--	9	14	25	21	26	23	22	--	
% Change From Previous Year - Comparable Grounds	--	--	--	-15	79	-18	--	--	--	--	--	
REGIONAL TOTALS												
No. Strutting Grounds Counted	23	12	21	34	30	32	34	25	17	32	10	
Total Male Grouse Counted	563	185	391	461	473	734	633	596	387	663	178	
Average Grouse Per Ground (all strutting grounds)	24	15	19	14	16	23	19	24	31	17	18	
% Change From Previous Year - Comparable Grounds	-9	-33	--	12	13	48	-18	--	--	-35	-10	

* No counts because of snow. Aerial count made in Wayne County only (not added to regional total).

Table 1 (continued)

Region and County	Year										
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Northeastern Region											
 Daggett											
No. Strutting Grounds Counted	6	--	5	6	6	6	7	6	--	6	3
Total Male Grouse Counted	45	--	25	22	26	46	25	42	--	17	14
County Average (all strutting grounds)	7	--	5	3	4	8	4	7	--	3	4.7
% Change From Previous Year - Comparable Grounds	56	--	-43	--	16	77	-24	24	--	--	-7
 Duchesne											
No. Strutting Grounds Counted	15	--	13	14	14	7	11	15	--	16	15
Total Male Grouse Counted	178	--	121	117	104	9	76	173	--	129	87
County Average (all strutting grounds)	12	--	9	8	7	1	7	12	--	8	5.8
% Change From Previous Year - Comparable Grounds	17	--	-29	--	-12	-83	167	22	--	--	-10
 Grand											
No. Strutting Grounds Counted	--	--	--	--	--	2	--	--	--	--	--
Total Male Grouse Counted	--	--	--	--	--	5	--	--	--	--	--
County Average (all strutting grounds)	--	--	--	--	--	3	--	--	--	--	--
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	0	--	--	--	--	--
 Uintah											
No. Strutting Grounds Counted	16	--	12	14	14	22	20	20	--	22	22
Total Male Grouse Counted	273	--	190	216	159	468	266	321	--	287	173
County Average (all strutting grounds)	17	--	16	15	11	21	13	16	--	13	7.9
% Change From Previous Year - Comparable Grounds	-21	--	-21	--	-26	66	-45	0	--	--	-34
 Wasatch											
No. Strutting Grounds Counted	--	--	--	--	--	2	2	--	--	--	--
Total Male Grouse Counted	--	--	--	--	--	22	22	--	--	--	--
County Average (all strutting grounds)	--	--	--	--	--	11	11	--	--	--	--
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	120	0	--	--	--	--
 REGIONAL TOTALS											
No. Strutting Grounds Counted	37	--	30	34	34	37	40	41	--	44	40
Total Male Grouse Counted	396	--	336	339	289	550	389	536	--	433	274
Average Grouse Per Ground (all strutting grounds)	13	--	11	10	9	15	10	13	--	5	6.1
% Change From Previous Year - Comparable Grounds	-3	--	-26	--	-18	37	-37	9	--	--	-27

Table 1 (continued)

Region and County	Year											
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Southeastern Region												
Carbon												
No. Strutting Grounds Counted	1	--	--	2	7	10	10	9	8	8	3	
Total Male Grouse Counted	16	--	--	32	55	196	181	146	103	40	14	
County Average (all strutting grounds)	16	--	--	16	8	20	18	16	13	5	4.7	
% Change From Previous Year - Comparable Grounds	100*	--	--	--	-27	142	-8	-38	-11	-61	-46	
Emery												
No. Strutting Grounds Counted	--	--	1	1	2	2	2	2	2	2	3	
Total Male Grouse Counted	--	--	12	11	10	12	28	5	7	7	3	
County Average (all strutting grounds)	--	--	12	11	5	6	14	3	4	4	1	
% Change From Previous Year - Comparable Grounds	--	--	--	-8	-18	20	167	-82	40	0	-57	
San Juan												
No. Strutting Grounds Counted	6	4	4	4	4	4	4	4	4	4	4	
Total Male Grouse Counted	59	57	39	29	35	32	39	41	32	40	44	
County Average (all strutting grounds)	10	14	10	7	9	8	10	10	8	10	11	
% Change From Previous Year - Comparable Grounds	52	-14	-29	-26	28	-9	22	5	-22	25	10	
REGIONAL TOTALS												
No. Strutting Grounds Counted	7	4	4	7	13	16	16	15	6	6	7	
Total Male Grouse Counted	75	57	39	72	100	240	248	192	47	55	50	
Average Grouse Per Ground (all strutting grounds)	11	14	10	10	8	15	16	13	8	9	7	
% Change From Previous Year - Comparable Grounds	34	-14	-29	-26	0	74	3	-35	2	-12	-31	
STATE TOTALS												
No. Strutting Grounds Counted	113	43	97	118	126	137	119	130	71	125	90	
Total Male Grouse Counted	1,711	664	1,234	1,708	1,818	2,734	2,041	2,660	1,252	2,050	1,122	
Average Grouse Per Ground (all strutting grounds)	15	15	13	14	14	20	17	20	18	16	12	
% Change From Previous Year - Comparable Grounds	-8	-18	-1	5	2	51	14	-2	-11	3	-32	

Table 2. Sage grouse summer inventory, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Young & Adults		Total Adults w/o Young	Total Adults	Total Young	Young/100 Adults		Hours of Effort		Birds/100 Hr	
	#	Adults		Young	Adults				Young	Vehicle Miles	Vehicle	Horse		Walk
Northern Region														
Box Elder	6	6	22	3.67	9	--	24	22	92	--	27	12	39	118
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	5	5	12	2.40	7	14	12	26	217	34	5	4	43	89
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	11	11	34	3.09	16	14	36	48	133	34	32	16	82	103
Central Region														
Juab	--	--	--	--	2	9	2	9	450	36	3	--	3	367
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	3	3	9	3.00	--	--	3	9	300	--	9	--	9	133
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	1	1	7	7.00	--	--	2	7	350	--	20	--	20	45
REGIONAL TOTALS	4	4	16	4.00	2	9	7	25	357	36	12	20	32	100
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	1	--	2	2.00	5	11	5	13	260	35	2	--	2	900
Uintah	5	5	25	5.00	--	--	5	25	500	30	1	--	1	3,000
REGIONAL TOTALS	6	5	27	4.50	5	11	10	38	380	65	3	--	3	1,600
Southeastern Region														
Carbon	1	1	4	4.00	--	--	2	4	200	95	7	10	2	18
Emery	--	--	--	--	--	--	--	--	--	35	3	--	2	5
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	1	4	4.00	--	--	2	4	200	130	10	10	4	23
STATE TOTALS	22	21	81	3.68	23	34	55	115	209	231	59	62	20	140

Table 3. Trend of sage grouse young per 100 adults, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92		
Northern Region														
Box Elder	135	75	265	178	94	108	167	267	161	143	92			
Cache	--	--	--	--	--	--	--	500	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	
Morgan	240	--	300	--	500	--	117	--	--	--	--	--	--	
Rich	--	164	96	91	116	153	--	100	67	125	217			
Summit	67	--	400	167	50	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	145	126	130	103	115	135	156	235	93	132	133	137		
Central Region														
Juab	--	--	--	--	--	380	250	196	--	450	450			
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	305	--	--	--	--	--	--	--	--	--	--	--	--	
Tonele	176	100	125	106	207	100	194	110	287	300	300			
Utah	--	--	--	--	--	150	--	--	1,200	--	--	--	--	
Wasatch	157	175	43	200	209	300	--	667	--	129	350			
REGIONAL TOTALS	214	155	64	120	209	135	177	166	344	148	357	173		
Southern Region														
Beaver	--	400	43	--	35	--	--	--	--	--	--	--	--	
Garfield	133	140	229	125	144	144	40	91	129	--	--	--	--	
Iron	150	63	--	250	198	146	155	264	100	--	--	--	--	
Kane	1,000	--	--	--	400	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	38	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	525	--	500	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	104	411	152	44	455	86	--	168	478	43	--	--	--	
REGIONAL TOTALS	98	92	137	105	216	127	135	154	128	40	123			
Northeastern Region														
Daggett	88	250	170	100	124	181	433	533	650	190	--	--	--	
Duchesne	240	145	297	180	137	288	217	600	160	--	260			
Uintah	375	67	261	127	192	164	148	352	114	278	500			
REGIONAL TOTALS	265	126	255	131	159	172	155	374	161	246	380	204		
Southeastern Region														
Carbon	--	238	400	133	150	--	56	33	200	33	200			
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	31	--	--	--	
San Juan	57	500	88	60	--	200	50	50	200	50	--	--	--	
REGIONAL TOTALS	57	267	122	81	150	200	55	88	160	34	200	121		
STATE TOTALS	202	125	147	114	160	145	147	183	122	95	209	144		

Table 4. Trend of average brood size for sage grouse, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	5.00	5.75	5.31	3.57	3.88	33.80	3.80	4.25	3.71	4.17	3.67			
Cache	--	--	--	--	--	--	--	5.00	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	
Morgan	4.20	--	3.40	--	5.00	--	7.00	--	--	--	--	--	--	
Rich	--	3.92	3.96	5.08	5.00	4.27	--	2.40	3.40	4.54	2.40	--	--	
Summit	3.33	--	--	4.00	5.00	4.00	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	4.25	4.36	4.39	4.74	4.82	4.17	4.30	3.67	3.36	4.36	3.09	4.24	4.24	
Central Region														
Juab	--	--	--	--	--	6.33	4.00	4.75	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	
Saopete	5.93	--	--	--	--	--	--	--	--	--	--	--	--	
Tonele	4.33	3.33	3.29	3.25	3.60	3.50	3.00	3.13	3.83	3.00	3.00	--	--	
Utah	--	--	--	--	--	--	--	--	12.00	--	--	--	--	
Wasatch	3.14	4.90	2.00	5.00	6.94	6.00	--	6.67	--	5.50	7.00	--	--	
REGIONAL TOTALS	4.37	4.54	2.56	3.60	5.42	4.29	3.40	4.27	5.00	4.67	4.00	4.21	4.21	
Southern Region														
Beaver	--	4.00	5.00	--	5.00	--	--	--	--	--	--	--	--	
Garfield	3.43	4.00	4.50	2.00	4.00	4.60	--	4.00	6.00	--	--	--	--	
Iron	3.00	3.50	--	4.00	4.64	3.67	4.66	6.00	5.00	--	--	--	--	
Kane	5.00	--	--	--	4.00	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	7.00	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	3.67	5.00	3.57	6.00	6.14	6.29	--	4.30	5.00	3.82	--	--	--	
REGIONAL TOTALS	3.62	4.27	4.00	4.29	4.89	4.89	4.66	4.82	5.60	3.82	--	4.49	4.49	
Northeastern Region														
Daggett	5.80	4.63	3.00	1.00	4.00	4.45	4.30	6.00	2.00	6.00	--	--	--	
Duchesne	4.59	3.77	4.73	4.29	3.54	3.60	2.17	6.00	4.00	--	2.00	--	--	
Uintah	5.13	3.00	5.00	5.44	5.55	4.05	5.15	5.60	2.00	4.75	5.00	--	--	
REGIONAL TOTALS	5.00	3.96	4.43	4.94	4.59	4.09	4.58	5.63	2.57	4.89	4.50	4.47	4.47	
Southeastern Region														
Carbon	--	4.33	4.00	4.00	1.50	--	4.50	--	6.00	2.67	4.00	--	--	
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	4.00	--	--	--	
San Juan	4.00	5.00	3.50	3.00	--	--	2.00	--	2.00	2.00	--	--	--	
REGIONAL TOTALS	4.00	4.50	3.67	3.40	1.50	--	3.67	--	4.00	2.80	4.00	4.32	4.32	
STATE TOTALS	4.58	4.27	4.04	4.53	4.86	4.29	4.37	4.71	3.70	4.21	3.68	4.36	4.36	

Table 5. Trend of sage grouse observed per 100 hours, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	90	195	380	304	475	694	431	303	102	146	118			
Cache	--	11	--	--	0	3	--	126	--	--	--			
Davis	--	--	--	--	--	--	--	--	--	--	--			
Morgan	93	--	19	--	19	--	100	--	--	--	--			
Rich	198	198	288	282	364	287	--	41	304	261	89			
Summit	81	--	--	21	480	300	--	--	--	--	--			
Weber	--	--	--	--	--	--	--	--	--	--	--			
REGIONAL TOTALS	82	110	186	198	251	271	64	78	155	197	103	159		
Central Region														
Juab	--	--	0	--	--	150	311	323	--	--	367	367		
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--		
Sanpete	214	--	--	--	--	--	--	--	--	--	--	--		
Tooele	203	105	242	746	742	150	252	150	414	100	133			
Utah	--	--	--	--	--	125	--	--	1,300	--	--			
Wasatch	41	122	267	92	792	27	19	209	--	254	45			
REGIONAL TOTALS	111	118	244	310	776	118	154	200	338	248	100	262		
Southern Region														
Beaver	767	167	429	--	575	--	--	--	--	--	--	--		
Garfield	300	257	295	225	275	452	207	661	320	--	--	--		
Iron	71	260	--	466	1,331	1,517	1,000	589	400	--	--	--		
Kane	275	--	--	--	500	--	--	--	--	--	--	--		
Millard	--	--	--	--	--	--	--	--	--	--	--	--		
Piute	--	--	--	316	--	--	--	--	--	--	--	--		
Sevier	--	--	--	--	--	417	--	--	150	829	--	--		
Washington	--	--	--	--	--	--	--	--	--	--	--	--		
Wayne	612	381	358	344	793	542	--	900	511	411	--	--		
REGIONAL TOTALS	392	304	342	300	732	574	705	781	314	402	485			
Northeastern Region														
Daggett	467	308	284	114	492	474	168	585	1,000	580	--	--		
Duchesne	433	454	325	165	382	141	123	350	81	--	900	--		
Uintah	866	314	888	813	642	830	1,191	566	1,500	523	3,000	--		
REGIONAL TOTALS	631	364	490	474	509	589	741	533	356	539	1,600	523		
Southeastern Region														
Carbon	--	415	--	200	28	--	125	685	90	377	377	--		
Emery	--	--	--	--	--	--	--	--	--	--	--	--		
Grand	--	--	--	--	--	--	--	--	--	567	--	--		
San Juan	50	57	231	400	--	--	150	120	100	300	--	--		
REGIONAL TOTALS	50	194	235	271	28	--	129	386	100	239	26	155		
STATE TOTALS	258	180	274	291	415	347	288	279	273	272	122	288		

Table 6. Summary of sage grouse hunter success and distribution of harvest and hunter pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	41	1,330	1,045	0.79	9.19	11.22
CACHE**	30	1,064	228	0.21	7.35	2.45
DAVIS**	7	247	19	0.08	1.71	0.20
MORGAN**	4	171	0	0.00	1.18	0.00
RICH	57	2,185	1,729	0.79	15.09	18.57
SUMMIT**	10	684	380	0.56	4.72	4.08
WEBER**	13	418	209	0.50	2.89	2.24
REGIONAL TOTALS	162	6,099	3,610	0.59	42.13	38.78
CENTRAL REGION						
JUAB**	5	171	38	0.22	1.18	0.41
SALT LAKE**	2	95	19	0.20	0.66	0.20
SANPETE**	4	171	57	0.33	1.18	0.61
TOOELE**	14	513	551	1.07	3.54	5.92
UTAH**	6	209	57	0.27	1.44	0.61
WASATCH**	8	247	114	0.46	1.71	1.22
REGIONAL TOTALS	39	1,406	836	0.59	9.71	8.98
SOUTHERN REGION						
BEAVER	7	209	209	1.00	1.44	2.24
GARFIELD	14	399	361	0.90	2.76	3.88
IRON	14	760	399	0.53	5.25	4.29
KANE	1	0	0	0.00	0.00	0.00
MILLARD**	3	95	380	4.00	0.66	4.08
PIUTE	6	152	171	1.13	1.05	1.84
SEVIER	21	1,064	380	0.36	7.35	4.08
WASHINGTON**	0	0	0	0.00	0.00	0.00
WAYNE	27	893	589	0.66	6.17	6.33
REGIONAL TOTALS	93	3,572	2,489	0.70	24.67	26.74
NORTHEASTERN REGION						
DAGGETT	8	228	152	0.67	1.57	1.63
DUCHESNE	8	266	342	1.29	1.84	3.67
UINTAH	42	1,748	1,273	0.73	12.07	13.67
REGIONAL TOTALS	58	2,242	1,767	0.79	15.49	18.98
SOUTHEASTERN REGION						
CARBON	6	209	76	0.36	1.44	0.82
EMERY**	3	38	38	1.00	0.26	0.41
GRAND	1	19	76	4.00	0.13	0.82
SAN JUAN**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	10	266	190	0.71	1.84	2.04
UNKNOWN	11	893	418	0.47	6.17	4.49
STATE TOTALS	373	14,480	9,311	0.64	100.00	100.00

* Total hunter-trips from questionnaire returns.

**Closed to sage grouse hunting in 1993.

Table 7. Summary of sage grouse bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.94	1.05	0.78	0.94	0.92	0.55	0.96	0.79
Cache	0.18*	0.38*	0.47*	0.45*	0.58	0.32*	0.55*	0.21*
Davis	0.25*	0.00*	0.00*	0.72*	0.25*	0.18*	0.60*	0.08*
Morgan	0.47*	1.25*	0.36*	0.50*	0.33*	0.93*	0.71*	0.00*
Rich	0.58	0.88	0.81	0.63	0.85	1.01	0.82	0.79
Summit	0.50*	0.55*	0.57*	0.71*	0.77*	0.67*	1.38*	0.56*
Weber	0.57*	0.56*	0.64*	0.27*	0.43*	0.34*	0.55*	0.50*
REGIONAL TOTALS	0.67	0.76	0.66	0.69	0.75	0.66	0.80	0.59
<u>Central Region</u>								
Juab	3.00*	0.60*	0.88*	0.22*	0.20*	0.54*	0.17*	0.22*
Salt Lake	2.54*	0.00*	0.50*	0.30*	0.00*	0.70*	0.00*	0.20*
Sanpete	0.38*	0.62*	0.23*	0.61*	1.00*	0.44*	0.22*	0.33*
Tooele	1.54*	1.10*	0.27	0.41*	1.15*	0.35*	0.65*	1.07*
Utah	0.42	0.62	0.42	0.33	0.39	0.86*	0.96*	0.27*
Wasatch	0.65*	0.58	0.48*	1.50*	0.55*	0.47*	0.70*	0.46*
REGIONAL TOTALS	0.85	0.70	0.36	0.42	0.52	0.53	0.68	0.59
<u>Southern Region</u>								
Beaver	0.90	1.08	0.76	0.42	0.38	0.29	0.83	1.00
Garfield	0.68	1.50	1.17	1.14	0.74	0.52	0.96	0.90
Iron	0.82	1.29	0.61	0.62	0.58	0.93	0.64	0.53
Kane	0.13	0.00	1.00	0.75	0.54	0.67	0.71	0.00
Millard	0.50*	1.00*	0.00*	0.09*	3.14*	1.27*	0.80*	4.00*
Piute	0.50	0.58	0.95	1.87	0.50	1.00	1.71	1.13
Sevier	0.43	1.00	0.67	0.39	1.08	0.39	0.49	0.36
Washington	0.00	0.00*	0.00*	0.00*	1.63*	2.00*	1.00*	0.00*
Wayne	1.19	0.60	1.30	1.05	1.04	1.03	0.92	0.66
REGIONAL TOTALS	0.75	0.99	0.91	0.86	0.92	0.78	0.79	0.70
<u>Northeastern Region</u>								
Daggett	0.45	1.00	1.20	0.33*	0.73	0.48	0.60	0.67
Duchesne	1.00	0.91	1.00	1.14	1.19	0.67	0.36	1.29
Uintah	1.30	1.25	1.12	0.98	0.87	0.71	0.87	0.73
REGIONAL TOTALS	1.16	1.17	1.11	0.93	0.89	0.68	0.76	0.79
<u>Southeastern Region</u>								
Carbon	1.24	1.09	1.04	0.44	0.29	0.50	0.64	0.36
Emery	2.71	1.00	0.77	0.95	0.20*	0.88*	0.60*	1.00*
Grand	0.40	2.00	0.00	1.50	1.11	0.00	1.33	4.00
San Juan	1.33	0.00	10.00	0.00*	0.00*	0.57*	0.00*	0.00*
REGIONAL TOTALS	1.44	1.13	1.40	0.63	0.47	0.59	0.77	0.71
Unknown counties	2.00	0.00	1.63	0.00	0.00	0.00	0.00	0.47
Closed areas	(10.58)	(6.06)	(3.25)	(4.65)	(9.65)	(10.52)	(9.81)	(8.90)
STATE TOTALS	0.84	0.89	0.76	0.71	0.78	0.67	0.77	0.64

*Closed season.

() Percent of bag per hunter-day in closed areas.

Table 8. Percentage distribution of sage grouse harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	19.61	16.63	16.47	22.39	17.21	12.34	15.50	11.22
Cache	0.88*	5.02*	4.77*	2.72*	5.22	2.64*	5.12*	2.45*
Davis	0.35*	0.00*	0.00*	2.72*	0.26*	0.28*	1.75*	0.20*
Morgan	2.45*	0.96*	1.36*	1.06*	0.78*	1.80*	1.75*	0.00*
Rich	4.90	8.12	12.04	11.65*	14.99	24.55	15.79	18.57
Summit	0.88*	1.16*	1.81*	0.76*	1.30*	2.22*	1.61*	4.08*
Weber	2.80*	0.96*	2.61*	2.12*	2.48*	2.91*	1.75*	2.24*
REGIONAL TOTALS	31.87	32.88	39.09	43.42	42.24	46.74	43.27	38.78
<u>Central Region</u>								
Juab	2.10*	0.58*	0.79*	0.30*	0.39*	0.97*	0.15*	0.41*
Salt Lake	5.78*	0.00*	0.11*	0.45*	0.00*	0.97*	0.00*	0.20*
Sanpete	1.58*	3.48*	1.25*	2.57*	1.17*	0.97*	0.73*	0.61*
Tooele	3.50*	4.25*	1.81	2.27	1.96*	0.97*	1.90*	5.92*
Utah	3.85	4.64	2.15	3.18	2.09	1.66*	7.75*	0.61*
Wasatch	2.63*	1.35	1.81*	0.91	0.78*	1.25*	1.02*	1.22*
REGIONAL TOTALS	19.44	4.31	7.95	9.68*	6.39	6.80	11.55	8.98
<u>Southern Region</u>								
Beaver	1.58	5.41	1.81	0.76	0.65	0.28	2.19	2.24
Garfield	4.38	4.64	3.86	8.62	7.17	2.36	3.51	3.88
Iron	2.45	3.48	1.59	2.42	1.43	1.94	3.65	4.29
Kane	0.18	0.00	0.11	0.45	0.91	0.28	0.73	0.00
Millard	0.18*	0.38*	0.00*	0.15*	2.87*	2.64*	0.58*	4.08*
Piute	0.35	1.35	2.04	4.24	0.65	2.77	1.75	1.84
Sevier	1.75	2.32	5.00	1.97	6.78	3.05	2.92	4.08
Washington	0.00	0.00*	0.00*	0.00*	1.69*	0.55*	0.29*	0.00*
Wayne	6.65	2.32	8.40	6.51	6.39	10.13	7.02	6.33
REGIONAL TOTALS	17.50	19.92	22.84	25.11	28.55	24.00	22.66	26.74
<u>Northeastern Region</u>								
Daggett	0.88	2.32	2.04	0.76*	3.78	1.39	1.32	1.63
Duchesne	3.68	4.06	2.61	3.63	4.82	2.77	1.46	3.67
Uintah	18.21	23.21	17.61	12.41	11.8	14.98	16.37	13.67
REGIONAL TOTALS	22.78	29.59	22.27	16.79	20.47	19.14	19.15	18.98
<u>Southeastern Region</u>								
Carbon	3.68	2.32	2.95	1.66	0.91	1.80	1.32	0.82
Emery	3.33	0.19	1.13	2.87	0.13*	0.97*	0.88*	0.41*
Grand	0.35	0.77	0.00	0.45	1.30	0.00	1.17	0.82
San Juan	0.70	0.00	2.27	0.00*	0.00*	0.55*	0.00*	0.00*
REGIONAL TOTALS	8.06	3.28	6.36	4.99	2.35	3.33	3.36	2.04
Unknown counties	0.35	0.00	1.47	0.00	0.00	0.00	0.00	4.49
Closed areas	(23.09)	(16.79)	(14.51)	(14.52)	(13.81)	(21.36)	(25.28)	(22.43)
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed season

() Percent of total harvest in closed areas.

Table 9. Percentage distribution of sage grouse hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	17.53	14.11	15.99	16.81	14.71	15.16	12.39	9.19
Cache	4.12*	11.87*	7.65*	4.28*	7.05	5.61*	7.21*	7.35*
Davis	1.18*	0.34*	1.63*	2.68*	0.82*	1.03*	2.25*	1.71*
Morgan	4.42*	0.68*	2.83*	1.50*	1.84*	1.31*	1.91*	1.18*
Rich	7.07	8.26	11.26	13.17	13.89	16.46	14.75	15.09
Summit	1.47*	1.89*	2.40*	0.75*	1.33*	2.25*	0.90*	4.72*
Weber	4.12*	1.54*	3.09*	5.57	4.49*	5.80*	2.48*	2.89*
REGIONAL TOTALS	39.91	38.72	44.88	44.75	44.13	47.62	41.89	42.13
<u>Central Region</u>								
Juab	0.59*	0.86*	0.68*	0.96*	1.53*	1.22*	0.68*	1.18*
Salt Lake	1.91*	0.17*	0.17*	1.07*	0.51*	0.94*	0.34*	0.66*
Sanpete	3.53*	4.99*	4.12*	3.00*	0.92*	1.50*	2.59*	1.18*
Tooele	1.91*	3.44*	5.07	3.96	1.33*	1.87*	2.25*	3.54*
Utah	7.81	6.71	3.86	6.85	4.19	1.31*	6.19*	1.44*
Wasatch	3.39*	2.06	2.83*	0.43*	1.12*	1.78*	1.13*	1.71*
REGIONAL TOTALS	19.15	18.24	16.76	16.27	9.60	8.61	13.18	9.71
<u>Southern Region</u>								
Beaver	1.47	4.47	1.80	1.28	1.33	0.65	2.03	1.44
Garfield	5.45	2.75	2.49	5.35	7.56	3.09	2.82	2.76
Iron	2.50	2.40	1.97	2.78	1.94	1.40	4.39	5.25
Kane	1.18	0.00	0.08	0.43	1.33	0.28	0.79	0.00
Millard	0.29*	0.34*	0.00*	1.18*	0.72*	1.40*	0.56*	0.66*
Piute	0.59	2.06	1.63	1.61	1.02	1.87	0.79	1.05
Sevier	3.39	2.06	5.67	3.53	4.90	5.33	4.62	7.35
Washington	0.00	0.34*	0.42*	0.00*	0.82*	0.19*	0.23*	0.00*
Wayne	4.71	3.44	4.90	4.39	4.80	6.64	5.86	6.17
REGIONAL TOTALS	19.59	17.89	18.99	20.56	24.41	20.86	22.07	24.67
<u>Northeastern Region</u>								
Daggett	1.62	2.06	1.28	1.61*	4.09	1.96	1.69	1.57
Duchesne	3.09	3.95	1.97	2.25	3.17	2.81	3.15	1.84
Uintah	11.78	16.52	11.95	8.99	10.73	14.31	14.53	12.07
REGIONAL TOTALS	16.59	22.54	15.21	12.85	17.98	19.08	19.37	15.49
<u>Southeastern Region</u>								
Carbon	2.50	1.89	2.14	2.68	2.45	2.43	1.58	1.44
Emery	1.03	0.17	1.11	2.14	0.51*	0.75*	1.13*	0.26*
Grand	0.74	0.34	0.00	0.21	0.92	0.00	0.68	0.13
San Juan	0.44	0.17	0.17	0.54*	0.00*	0.65*	0.00*	0.00*
REGIONAL TOTALS	4.71	2.57	3.43	5.57	3.88	3.84	3.38	1.84
Unknown counties	0.15	0.00	0.68	0.00	0.00	0.00	0.11	6.17
Closed areas	(26.90)	(26.46)	(25.82)	(23.57)	(15.94)	(26.29)	(29.85)	(28.48)
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed season

() Percent of total pressure in closed areas.

Table 10. Statewide summary of sage grouse harvest statistics, 1951-93.

Year	Total Hunters*	Total Harvest*	Hunter-Days Afield	Sage Grouse Per Hunter-Day	Sage Grouse Per Hunter
1951	840	2,458	--	--	2.93
1952	678	2,230	--	--	3.29
1953	895	2,581	--	--	2.88
1954	802	2,510	--	--	3.13
1955	579	1,742	--	--	3.01
1956	495	1,375	--	--	2.97
1957	470	1,303	--	--	2.77
1958	567	1,797	--	--	3.17
1959	699	1,875	--	--	2.68
1960	861	2,246	--	--	2.61
1961**	1,078	1,918	--	--	1.78
1962***	2,382	5,352	5,097	1.05	1.89
1963	12,366	3,793	15,564	0.89	1.12
1964	4,362	6,827	5,807	1.18	1.56
1965	3,243	3,881	4,673	0.83	1.20
1966	2,612	3,962	4,006	0.99	1.52
1967	5,336	5,089	7,860	0.65	0.95
1968	9,115	11,109	13,601	0.82	1.22
1969	12,894	22,282	20,466	1.09	1.73
1970	12,036	15,877	18,506	0.86	1.32
1971	12,893	20,013	21,509	0.93	1.55
1972	13,040	15,983	22,232	0.72	1.23
1973	10,017	13,926	19,049	0.73	1.39
1974	12,214	15,215	23,516	0.65	1.25
1975	13,996	18,916	25,720	0.74	1.35
1976	15,283	24,541	28,342	0.87	1.61
1977	14,078	18,615	25,759	0.72	1.32
1978	16,231	25,938	29,861	0.87	1.60
1979	16,927	28,280	30,682	0.92	1.67
1980	15,219	22,770	26,893	0.85	1.50
1981	10,083	15,857	18,617	0.85	1.57
1982	8,997	12,383	15,663	0.79	1.38
1983	9,201	14,949	18,467	0.81	1.63
1984	8,283	10,921	15,266	0.72	1.32
1985	7,586	11,466	14,702	0.78	1.51
1986	7,233	11,766	13,992	0.84	1.63
1987	7,060	12,673	14,242	0.89	1.80
1988	8,499	14,692	19,418	0.76	1.73
1989	9,002	13,710	19,373	0.71	1.52
1990	9,014	15,784	20,147	0.78	1.75
1991	8,018	12,542	18,596	0.67	1.56
1992	7,393	12,156	15,781	0.77	1.64
1993	6,594	9,311	14,480	0.64	1.41
Totals					
(1951-93)	319,171	472,614	567,887	--	--
Average					
(1951-92)	7,442	11,031	13,176	0.61	1.84

* The number of sage grouse hunters and consequently harvest was limited by permits available from 1951 through 1962.

** Estimated.

*** Totals and indices based on indiscrete data.

Table 11. Sage grouse field bag check summary, 1993.

Region and County	All Hunts				Complete Hunts				Birds/ Hunter		
	Total Parties	Total Hunters	Total Hours	Total Birds	Birds/ 100 Hr	Complete Hunts	Total Hunters	Total Hours		Total Birds	Birds/ 100 Hr
Northern Region											
Box Elder	--	--	--	--	--	87	196	1,097	195	18	0.99
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	119	117	1,106	33	3	0.28
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	206	313	2,203	228	10	0.73
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	36	101	575	46	8	32	92	540	40	7	0.43
REGIONAL TOTALS	36	101	575	46	8	32	92	540	40	7	0.43
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--
Uintah	1	2	2	4	200	1	2	2	1	50	0.50
REGIONAL TOTALS	1	2	2	4	200	1	2	2	1	50	0.50
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	2	7	18	3	17	2	7	18	3	17	0.43
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	2	7	18	3	17	2	7	18	3	17	0.43
STATE TOTALS	39	110	595	53	9	241	414	2,763	272	10	0.66

Table 12. Sage grouse hunter success trend as determined by field bag check, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter	Birds/100 Hr	Birds/100 Hr Hunter
Northern Region												
Box Elder	16	1.21	21	1.28	25	1.77	11	0.83	19	1.43	18	0.99
Cache	--	--	--	--	--	--	100	2.00	--	--	--	--
Davis	--	--	--	--	--	--	--	0.00	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	18	0.60	8	0.38	13	0.67	9	0.37	9	0.52	3	0.28
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	17	1.06	16	0.87	20	1.24	10	0.62	15	0.99	10	0.73
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--
Tonele	40	0.83	41	0.87	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	40	0.93	41	0.87	--	--	--	--	--	--	--	--
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	65	1.82	64	0.33	--	--	--	--	--	--	--	--
Iron	14	0.70	--	0.64	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	23	1.12	--	--	23	0.81	21	1.02	7	0.44	7	0.43
REGIONAL TOTALS	24	1.15	227	0.51	23	0.81	21	1.02	7	0.44	7	0.43
Northeastern Region												
Daggett	40	0.67	6	0.33	17	0.67	35	1.04	--	--	--	--
Duchesne	--	--	--	--	50	1.00	13	0.50	--	--	--	--
Uintah	26	0.91	20	0.87	27	0.86	40	1.11	26	0.81	50	0.50
REGIONAL TOTALS	27	0.90	18	0.84	26	0.83	34	1.01	26	0.81	50	0.50
Southeastern Region												
Carbon	--	--	22	0.77	13	0.67	--	--	36	1.43	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	30	2.40	17	0.43
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	19	1.04	17	0.85	47	1.83	14	0.75	14	0.88	10	0.66

Table 13. Sex and age composition of harvested sage grouse, 1993.

Region and County	Adults			Yearlings			Immatures			Sample Size	Young/ 100 Adults	Young/ 100 Hens
	M	F	Total	M	F	Total	M	F	Total			
Northern Region												
Box Elder	26	46	72	3	12	15	38	49	87	174	100	150
Cache	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	235
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	26	46	72	3	12	15	38	49	87	174	100	150
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sampete	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	2	14	16	2	5	7	13	23	36	59	157	189
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	9	41	50	7	23	30	44	55	99	179	124	155
REGIONAL TOTALS	11	55	66	9	28	37	57	78	135	238	131	163
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	0	1	1	0	0	0	0	1	1	2	100	100
REGIONAL TOTALS	0	1	1	0	0	0	0	1	1	2	100	100
Southeastern Region												
Carbon	1	5	6	0	0	0	2	3	5	11	83	100
Emery	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	5	6	0	0	0	2	3	5	11	83	100
STATE TOTALS	38	107	145	12	40	52	97	131	228	425	116	155

Table 14. Sex and age composition of harvested sea bream from 1989-95.

Region and County	1989				1991				1992				1993				Average 1989-92			
	Sex Ratio %		Young/100A	Young/100B	Sex Ratio %		Young/100A	Young/100B	Sex Ratio %		Young/100A	Young/100B	Sex Ratio %		Young/100A	Young/100B	Sex Ratio %		Young/100A	
	M	F	n	n	M	F	n	n	M	F	n	n	M	F	n	n	M	F	n	
Northern Region																				
Box Elder	43	57	195	119	171	39	61	92	54	237	47	53	167	174	39	61	150	106		
Cache																				
DeWitt																				
Minnesa																				
Blair	39	61	232	156	409	50	50	122	68	238	34	66	220	195			235	178		
Summit																				
Wabier																				
REGIONAL TOTALS	42	58	198	180	610	42	58	113	64	475	46	60	192	369	39	61	150	100	528	
Central Region																				
Josh																				
Salt Lake																				
Sauvate																				
Tooele																				
Utah																				
Wasatch																				
REGIONAL TOTALS																				
Southern Region																				
Beaver																				
Garfield																				
Leon														59	29	71	189	157		
Kane																				
Millard																				
Platte																				
Sevier																				
Washington																				
Wayne	42	58	233	156	333	42	58	187	125	292	35	65	138	179	34	66	155	124		
REGIONAL TOTALS	42	58	233	156	333	42	58	187	125	292	35	65	138	258	32	68	163	131	330	
Northeastern Region																				
Doggett										116	57	48	233	141						
Buchanan										5	40	60	100	67	2	0	100	100		
Lincoln																				
REGIONAL TOTALS										121	56	44	236	158	2	0	100	100	100	
Southwestern Region																				
Carbon			86	64						42	36	64	76	62	11	27	73	100	83	
Emery																				
Grand																				
San Juan																				
REGIONAL TOTALS			86	64						42	36	64	76	62	11	27	73	100	83	
STATE TOTALS	42	58	205	134	948	42	58	336	81	930	41	59	169	620	35	65	155	116	938	
																				44
																				226
																				138
																				176
																				107

FOREST GROUSE

SUMMARY

Production of blue and ruffed grouse increased and decreased respectively from 1992. A total of 14 forest grouse broods were observed during 1993 compared with 44 in 1992, 51 in 1991 and 59 in 1990.

Total harvest decreased from 44,518 in 1992 to 18,147 in 1993, a 22 percent decrease. Total hunters and days afield also decreased.



Brood Counts

Ruffed Grouse

Results of the annual random brood survey for 1993 are shown in Table 1 of this section. Long-term trends of young per adult ratios, mean brood size and ruffed grouse observed per 100 hours are found in Tables 2-4. A summary of effort expended on ruffed and blue grouse brood counts combined is shown in Table 9. Survey results for 1993 compared to 1992 and the previous 10-year average (1983-1992) follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total ruffed grouse observed	2	-96	-97
Young per 100 adults	100	-63	-68
Mean brood size	1.00	-76	-76
Ruffed grouse observed per 100 hours	2	-94	-94
Total hours effort	110	-39	-62

Effort on brood surveys decreased by 39 percent and was 62 percent below average.

Grouse observed per 100 hours was 94 percent below average, while mean brood size was 76 percent below average indicating decreased production.

Blue Grouse

Results of the annual random brood survey for 1993 are shown in Table 5 of this section. Long-term trends of young per adult ratios, mean brood size and blue grouse observed per 100 hours are found in Tables 6-8. Survey results for 1993 compared to 1992 and the previous 10-year average (1983-92) follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total blue grouse observed	53	-75	-85
Young per 100 adults	308	+27	+30
Mean brood size	3.08	-28	-18
Blue grouse observed per 100 hours	48	-63	-57
Total hours effort (forest grouse)	110	-34	-65

The 1993 summer surveys on blue grouse indicated that production increased (27 percent) from 1992 and was 30 percent above average.

Total observations decreased 75 percent, with a 34 percent decrease in effort. The number of grouse observed per 100 hours of effort decreased from 1992 and was 57 percent below average.

Harvest

Hunter Questionnaire

Results of the 1993 blue grouse, ruffed grouse and combined hunter questionnaire are shown in Table 10, 11 and 12 respectively. Long-term trends of forest grouse bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 13-15 and total statewide harvest statistics in Table 16 and Figures 1 and 2. Forest grouse season length, bag limits and harvest statistics, 1963-1993 are listed in Table 17. Harvest statistics for 1993 compared to 1992 and the previous 30-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Forest grouse hunters	12,029	-4	-18
Forest grouse harvested	18,147	-22	-49
Hunter-days afield	36,390	-8	-2
Forest grouse per hunter-day	0.50	-15	-48
Forest grouse per hunter	1.51	-19	-35
Percent ruffed grouse	36.65	+3	-5
Percent blue grouse	60.84	-7	+10
Percent unidentified	2.52	+444	-58

Total harvest increased 22 percent from 1992 and was 49 percent below average. Overall, hunter success (grouse per hunter-day) was 48 percent below average and the number of grouse harvested per hunter was 35 percent below average. Hunter pressure decreased and remains 18 percent below the long-term average.

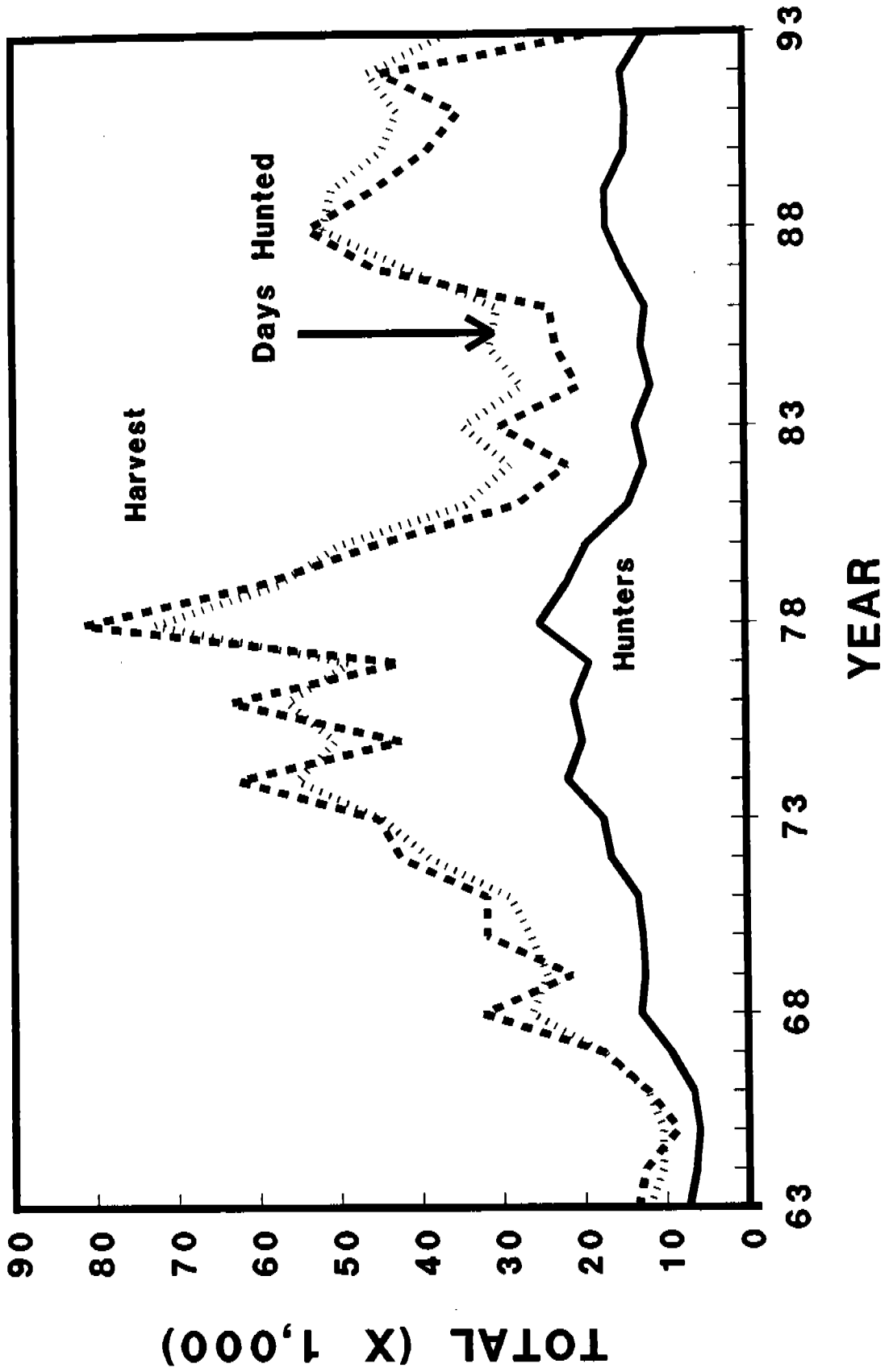


Figure 1. Statewide trends of forest grouse harvest statistics, 1963-93.

FOREST GROUSE PER HUNTER AND PER DAY

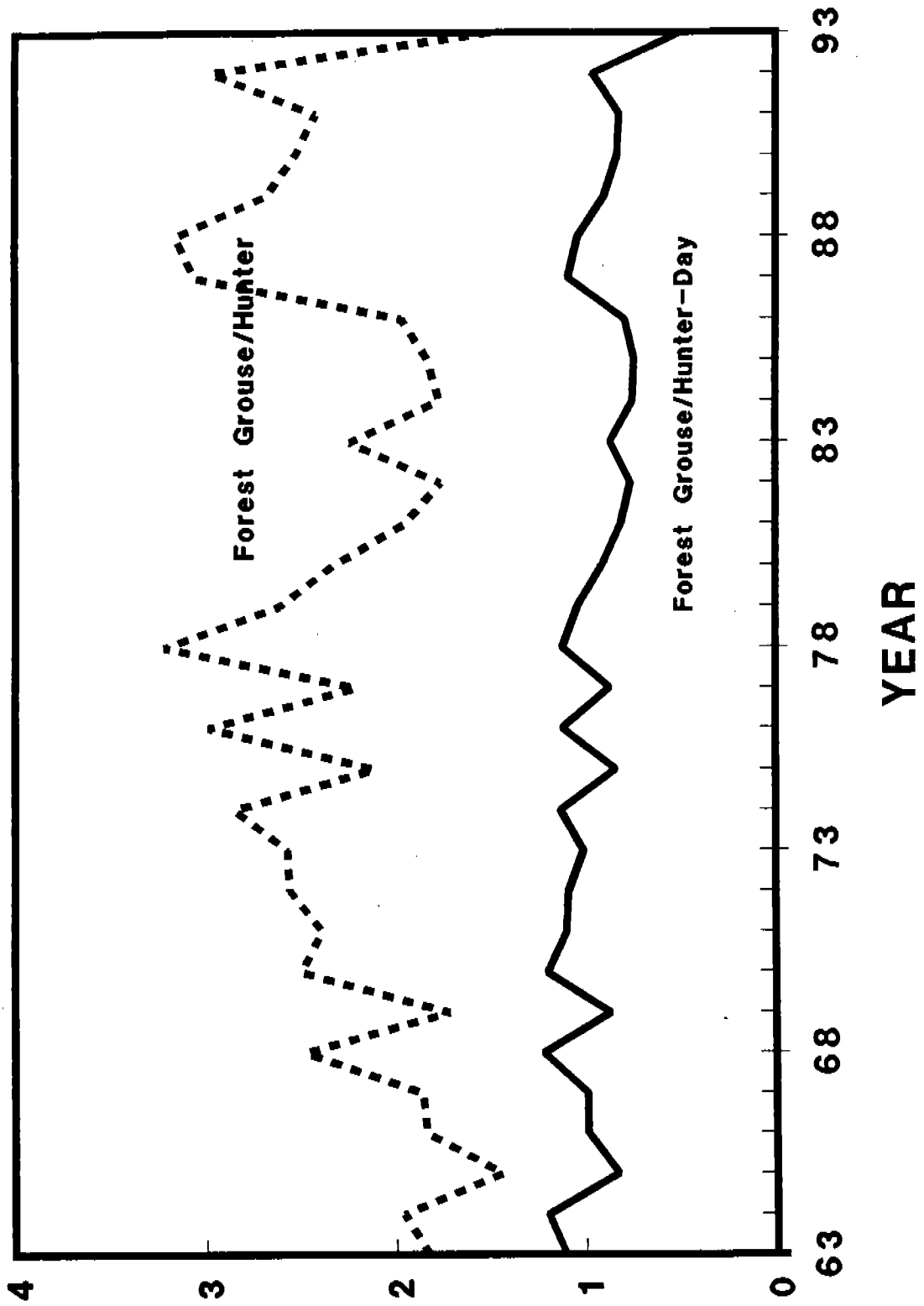


Figure 2. Statewide trends of forest grouse hunter success rates, 1963-93.

Field Bag Checks

No field bag check data was collected in 1993 (Table 18). Hunter success trends determined via this method are shown in table 19. Sex and age composition of the harvest as determined from wings is shown in Table 20 and 21.

Table 1. Ruffed grouse summer inventory, 1993.

Region and County	Distinct		Mean	Mixed Young & Adults		Total Adults w/o Young	Total Young	Total Young 100 Adults	Young/100 Adults	Hours of Effort		Birds/100 Hr
	#	Broods		Adults	Young					Vehicle Miles	Horse	
Northern Region												
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	290	26	--	26
Davis	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	8	8
REGIONAL TOTALS	--	--	--	--	--	--	--	--	290	26	8	34
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Snapete	--	--	--	--	--	--	--	--	--	--	8	8
Tooele	--	--	--	--	--	--	--	--	--	2	--	2
Utah	1	1	1.00	--	--	1	1	100	--	4	10	14
Wasatch	--	--	--	--	--	--	--	--	--	3	1	4
REGIONAL TOTALS	1	1	1.00	--	--	1	1	100	--	9	19	28
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	36	3	--	3
Uintah	--	--	--	--	--	--	--	--	5	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	41	3	--	3
Southeastern Region												
Carbon	--	--	--	--	--	--	--	--	200	29	9	38
Emery	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	23	4	--	4
San Juan	--	--	--	--	--	--	--	--	20	4	--	4
REGIONAL TOTALS	--	--	--	--	--	--	--	--	243	36	9	45
STATE TOTALS	1	1	1.00	--	--	1	1	100	574	74	36	110
												2

Table 2. Trend of ruffed grouse young per 100 adults, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92		
Northern Region														
Box Elder	300	--	--	433	150	50	--	300	250	400	--	--	--	
Cache	700	--	350	100	300	267	300	150	225	167	--	--	--	
Davis	--	--	--	--	--	136	--	--	--	217	--	--	--	
Morgan	200	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	667	200	--	267	--	--	--	--	--	--	--	
Summit	--	--	200	400	500	--	300	450	400	--	--	--	--	
Weber	--	--	150	--	380	220	--	--	700	467	--	--	--	
REGIONAL TOTALS	286	--	308	300	337	141	300	300	355	277	--	--	285	
Central Region														
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	--	--	--	150	0	--	--	--	--	--	--	--	--	
Sanpete	475	--	8,700	--	--	--	--	--	300	400	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	--	460	320	300	300	--	--	100	100	--	--	
Wasatch	300	--	--	--	--	--	--	280	--	--	--	--	--	
REGIONAL TOTALS	392	--	700	322	320	300	300	280	300	250	100	--	357	
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	450	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	333	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	450	--	333	--	--	--	--	392	
Northeastern Region														
Daggett	--	--	--	--	--	--	150	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	--	400	600	--	--	--	--	--	
Uintah	--	--	--	400	400	--	267	600	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	400	400	--	250	600	--	--	--	--	417	
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	300	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	300	--	--	--	--	--	--	--	300	
STATE TOTALS	353	--	336	312	306	160	277	356	350	273	100	--	303	

Table 3. Trend of average brood size for ruffed grouse, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	3.00	--	--	2.00	3.00	3.00	--	3.00	5.00	4.00	--		
Cache	7.00	--	3.50	1.00	3.14	4.00	3.00	3.00	3.00	5.00	--		
Davis	--	--	--	--	--	4.00	--	--	--	4.33	--		
Morgan	5.00	--	--	--	--	--	--	--	3.33	--	--		
Rich	--	--	6.67	3.00	--	--	3.00	--	--	--	--		
Suamit	--	--	3.33	4.00	5.00	--	3.00	4.50	4.00	--	--		
Weber	--	--	3.00	--	4.75	3.67	--	--	7.00	4.67	--		
REGIONAL TOTALS	5.00	--	4.44	2.60	3.93	3.64	3.00	3.75	4.13	4.50	--	3.89	
Central Region													
Juab	--	--	--	--	--	--	--	--	--	--	--		
Salt Lake	--	--	--	--	--	--	--	--	--	--	--		
Sanpete	4.75	--	7.00	--	--	--	--	--	3.00	4.00	--		
Tooele	--	--	--	--	--	--	--	--	--	--	--		
Utah	--	--	--	4.60	3.20	3.00	3.00	--	--	1.00	1.00		
Wasatch	9.00	--	--	--	--	--	--	4.70	--	--	--		
REGIONAL TOTALS	5.22	--	7.00	4.60	3.20	3.00	3.00	4.70	3.00	2.50	1.00	4.02	
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--		
Garfield	--	--	--	--	--	--	--	--	--	--	--		
Iron	--	--	--	--	--	--	--	--	--	--	--		
Kane	--	--	--	--	--	--	--	--	--	--	--		
Millard	--	--	--	--	--	--	--	--	--	--	--		
Piute	--	--	--	--	--	--	--	--	--	--	--		
Sevier	--	--	--	--	--	4.50	--	--	--	--	--		
Washington	--	--	--	--	--	--	--	--	--	--	--		
Wayne	--	--	--	--	--	--	--	5.00	--	--	--		
REGIONAL TOTALS	--	--	--	--	--	4.50	--	5.00	--	--	--	4.75	
Northeastern Region													
Daggett	--	--	--	--	--	--	3.00	--	--	--	--		
Duchesne	--	--	--	--	--	--	4.00	6.00	--	--	--		
Uintah	--	--	--	4.00	4.00	--	4.00	6.00	--	--	--		
REGIONAL TOTALS	--	--	--	4.00	4.00	--	3.75	6.00	--	--	--	4.58	
Southeastern Region													
Carbon	--	--	--	--	--	--	--	--	--	--	--		
Emery	--	--	--	3.00	--	--	--	--	--	--	--		
Grand	--	--	--	--	--	--	--	--	--	--	--		
San Juan	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	--	--	--	3.00	--	--	--	--	--	--	--	3.00	
STATE TOTALS	5.15	--	4.70	3.60	3.75	3.71	3.30	4.75	4.00	4.10	1.00	4.12	

Table 4. Trend of ruffed grouse observed per 100 hours, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	38	--	--	80	31	100	--	64	29	45	--	--	--	
Cache	6	--	17	20	58	17	46	5	76	40	--	--	--	
Davis	--	--	--	--	--	114	--	--	--	76	--	--	--	
Morgan	57	--	2	--	--	--	--	--	50	--	--	--	--	
Rich	--	--	1,150	53	--	50	--	--	--	--	--	--	--	
Summit	--	--	52	36	900	--	9	40	20	--	--	--	--	
Weber	--	--	21	--	267	178	--	--	26	170	--	--	--	
REGIONAL TOTALS	1	--	26	30	56	62	22	13	32	47	--	--	32	
Central Region														
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	--	--	--	167	--	--	--	--	--	--	--	--	--	
Sanpete	271	--	160	--	--	--	--	--	12	38	--	--	--	
Tonele	--	--	--	--	--	--	--	--	--	--	--	--	--	
Utah	3	--	--	400	50	133	133	--	--	13	14	--	--	
Wasatch	--	86	--	--	25	--	--	46	--	--	--	--	--	
REGIONAL TOTALS	63	86	14	88	30	133	133	28	6	13	7	--	59	
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	138	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	138	--	433	--	--	--	--	286	
Northeastern Region														
Daggett	--	--	--	--	--	--	109	--	--	--	--	--	--	
Duchesne	--	--	--	--	4	--	33	175	--	--	--	--	--	
Uintah	--	--	--	--	68	--	28	180	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	28	--	28	105	--	--	--	--	54	
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	400	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	400	--	--	--	--	--	--	--	400	
STATE TOTALS	19	86	22	47	45	46	26	30	23	31	2	--	38	

Table 5. Blue grouse summer inventory, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Young & Adults		Total Adults w/o Young	Total Young	Young/100 Adults	Hours of Effort		Birds/100 Hr
	# Adults	Young		Adults	Young				Vehicle Miles	Horse	
Northern Region											
Box Elder	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	290	26	--	26
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	1	1	1	--	--	--	8	8
REGIONAL TOTALS	--	--	--	1	1	1	--	290	26	8	34
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	2	2	2	--	--	8	8	25
Tooele	--	--	--	--	--	--	--	--	2	--	2
Utah	--	--	--	--	--	--	--	--	4	10	14
Wasatch	1	3	3.00	--	2	3	3	100	3	1	4
REGIONAL TOTALS	1	3	3.00	--	4	5	3	60	9	19	28
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	1	2	2.00	--	--	1	2	200	36	3	120
Uintah	1	6	6.00	--	--	1	6	600	5	0	3,500
REGIONAL TOTALS	2	8	4.00	--	--	2	8	400	41	3	370
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	200	29	38
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	6	6	3.17	2	7	9	26	289	23	4	875
San Juan	4	4	2.50	--	2	6	10	167	20	4	457
REGIONAL TOTALS	10	10	2.90	2	7	3	36	240	243	36	113
STATE TOTALS	13	13	3.08	--	--	13	40	308	574	74	48

Table 6. Trend of blue grouse young per 100 adults, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	125	350	--	100	--	--	700	144	400	200	--	--		
Cache	467	--	167	--	300	363	257	300	600	80	--	--		
Davis	300	250	183	150	222	248	200	480	260	180	--	--		
Morgan	--	300	900	--	433	--	--	--	--	--	--	--		
Rich	--	--	--	350	--	--	--	--	600	400	--	--		
Summit	--	500	450	--	500	--	200	178	155	--	--	--		
Weber	--	--	400	--	380	400	--	--	186	100	--	--		
REGIONAL TOTALS	220	300	269	222	300	279	244	292	277	207	--	--	261	
Central Region														
Juab	400	400	0	180	--	--	--	700	--	--	--	--		
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--		
Sanpete	--	--	--	600	--	--	80	--	--	--	--	--		
Tooele	138	--	168	167	218	650	650	276	231	300	--	--		
Utah	200	--	175	--	256	267	267	286	170	--	--	--		
Wasatch	250	--	--	--	--	--	--	--	--	100	100	--		
REGIONAL TOTALS	156	400	157	169	273	486	317	286	194	80	60	--	252	
Southern Region														
Beaver	700	250	200	267	133	109	--	--	--	--	--	--		
Garfield	300	241	200	245	160	--	23	--	--	--	--	--		
Iron	--	--	--	--	300	--	--	--	--	--	--	--		
Kane	267	--	255	500	475	250	--	--	--	--	--	--		
Millard	--	100	300	200	425	60	--	--	--	--	--	--		
Plute	--	200	300	300	--	--	--	--	--	--	--	--		
Sevier	100	80	417	--	150	90	--	--	--	--	--	--		
Washington	367	--	--	233	533	--	--	--	--	--	--	--		
Wayne	400	--	600	--	350	375	--	--	246	--	--	--		
REGIONAL TOTALS	237	164	282	279	230	118	23	--	246	--	--	--	197	
Northeastern Region														
Daggett	500	--	--	282	331	318	364	233	--	600	--	--		
Duchesne	340	--	--	228	129	190	--	600	--	800	200	--		
Uintah	311	--	--	140	500	233	138	60	--	--	600	--		
REGIONAL TOTALS	402	--	--	235	305	254	268	223	--	400	--	--	298	
Southeastern Region														
Carbon	700	300	150	500	--	--	--	--	--	500	--	--		
Emery	--	--	--	400	400	100	--	--	--	--	--	--		
Grand	--	25	200	260	--	227	300	--	200	286	289	--		
San Juan	100	175	300	--	300	213	300	--	500	233	167	--		
REGIONAL TOTALS	200	140	206	300	140	200	75	--	350	284	240	211		
STATE TOTALS	272	190	229	225	268	207	225	274	238	243	291	237		

Table 7. Trend of average brood size for blue grouse, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993			
Northern Region														
Box Elder	5.00	7.00	--	2.00	--	--	7.00	3.20	4.00	5.00	--	--	--	
Cache	4.33	--	3.33	--	3.67	3.63	3.60	3.70	4.50	4.00	--	--	--	
Davis	3.00	5.50	3.67	3.00	2.83	4.00	4.50	6.50	4.33	3.00	--	--	--	
Morgan	--	3.00	9.00	--	4.33	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	6.00	6.00	--	--	--	
Summit	--	5.00	4.50	--	5.00	--	3.00	4.00	3.40	--	--	--	--	
Weber	--	--	5.33	4.00	4.75	4.00	--	--	3.25	--	--	--	--	
REGIONAL TOTALS	4.20	4.83	4.73	3.25	3.88	3.84	3.86	4.30	4.05	4.31	--	--	4.13	
Central Region														
Juab	4.00	4.00	0.00	--	--	--	--	7.00	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	6.00	--	2.00	--	--	--	--	--	--	
Tooele	3.83	--	3.38	3.20	3.43	6.00	6.00	3.13	3.60	3.00	--	--	--	
Utah	4.00	--	3.50	--	3.45	5.00	5.00	5.00	3.22	--	--	--	--	
Wasatch	5.00	--	--	--	--	--	--	--	--	1.00	3.00	--	--	
REGIONAL TOTALS	4.00	4.00	3.43	3.20	3.62	4.67	4.20	4.00	3.36	2.00	3.00	--	3.65	
Southern Region														
Beaver	7.00	3.33	2.00	2.67	4.00	4.00	--	--	--	--	--	--	--	
Garfield	3.00	3.22	--	4.50	3.29	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	3.50	--	--	--	--	--	--	--	--	
Kane	4.00	--	--	1.00	4.75	4.00	--	--	--	--	--	--	--	
Millard	--	2.67	4.00	4.00	4.25	1.50	--	3.00	--	--	--	--	--	
Piute	--	4.00	3.00	3.00	--	--	--	--	--	--	--	--	--	
Sevier	2.50	2.00	4.16	--	4.57	2.33	--	--	--	--	--	--	--	
Washington	3.67	--	--	3.50	5.33	--	--	--	--	--	--	--	--	
Wayne	4.00	--	6.00	--	3.50	3.75	--	--	4.57	--	--	--	--	
REGIONAL TOTALS	3.58	2.95	3.21	3.53	4.12	2.71	--	3.00	4.57	--	--	--	3.46	
Northeastern Region														
Daggett	4.33	--	--	3.75	4.71	3.20	3.89	3.50	--	6.00	--	--	--	
Duchesne	3.40	--	--	3.25	2.50	2.50	--	6.00	--	8.00	2.00	--	--	
Uintah	5.60	--	--	4.00	5.00	3.50	2.20	--	--	--	6.00	--	--	
REGIONAL TOTALS	4.63	--	--	3.56	4.52	3.00	3.29	4.33	--	6.67	4.00	--	4.28	
Southeastern Region														
Carbon	7.00	3.00	3.00	5.00	--	--	--	--	--	5.00	--	--	--	
Emery	--	--	--	--	4.00	4.00	--	--	--	--	--	--	--	
Grand	--	--	3.00	3.25	--	2.78	3.00	--	2.00	4.38	3.17	--	--	
San Juan	4.00	1.75	3.00	--	3.00	3.00	3.00	--	5.40	3.50	2.50	--	--	
REGIONAL TOTALS	5.50	2.17	3.00	3.60	3.50	2.93	3.00	--	3.50	4.13	2.90	--	3.48	
STATE TOTALS	4.29	3.18	3.56	3.44	4.00	3.22	3.61	4.19	3.88	4.29	2.91	--	3.77	

Table 8. Trend of blue gramin observed per 100 hours, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92		
Northern Region														
Box Elder	64	38	--	20	0	--	--	200	21	136	--	--	--	
Cache	14	--	77	--	71	56	114	108	165	45	--	--	--	
Davis	33	110	94	50	232	300	120	426	86	112	--	--	--	
Morgan	4	200	23	4	59	--	17	--	--	--	--	--	--	
Rich	--	--	--	53	0	0	--	--	175	79	--	--	--	
Summit	--	12	38	--	900	--	21	100	55	--	--	--	--	
Weber	4	--	167	100	267	56	--	--	65	40	--	--	--	
REGIONAL TOTALS	15	28	58	27	109	90	79	133	63	83	--	--	69	
Central Region														
Juab	29	125	30	156	0	--	--	800	--	--	--	--	--	
Salt Lake	14	--	--	--	400	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	1,400	--	14	4	--	23	25	--	--	
Tooele	344	--	536	444	206	1,000	1,000	233	--	200	--	--	--	
Utah	32	--	165	--	229	367	367	113	318	--	--	--	--	
Wasatch	50	--	--	--	0	--	--	--	--	9	150	--	--	
REGIONAL TOTALS	94	17	183	254	194	683	72	75	180	24	29	--	178	
Southern Region														
Beaver	133	233	33	137	175	164	--	--	--	--	--	--	--	
Garfield	--	--	122	141	195	--	--	100	--	--	--	--	--	
Iron	--	--	--	--	1,200	--	--	--	--	--	--	--	--	
Kane	122	--	213	257	383	127	--	--	--	--	--	--	--	
Millard	15	107	133	200	525	100	--	--	--	--	--	--	--	
Plute	--	200	67	266	--	--	--	--	--	--	--	--	--	
Sevier	50	72	155	--	275	738	--	--	--	--	--	--	--	
Washington	117	--	--	333	950	--	--	--	--	--	--	--	--	
Wayne	--	--	700	--	450	475	--	--	2,250	--	--	--	--	
REGIONAL TOTALS	80	122	140	178	309	247	--	200	2,250	--	--	--	441	
Northeastern Region														
Daggett	632	--	--	300	1,255	230	265	286	--	1,400	--	--	--	
Duchesne	51	--	--	51	64	121	--	175	--	225	120	--	--	
Uintah	239	--	--	600	55	37	48	320	--	--	3,500	--	--	
REGIONAL TOTALS	232	--	--	126	286	120	95	46	--	500	370	--	201	
Southeastern Region														
Carbon	80	53	33	60	--	--	--	--	--	240	--	--	--	
Emery	--	--	--	--	500	--	--	--	--	--	--	--	--	
Grand	--	50	360	120	300	--	89	--	300	540	875	--	--	
San Juan	100	73	53	--	400	--	400	--	600	600	457	--	--	
REGIONAL TOTALS	90	60	123	96	400	--	85	--	450	480	113	223	223	
STATE TOTALS	83	55	101	110	197	166	81	93	112	130	48	113	113	

Table 9. Summary of effort expended on forest grouse brood counts, 1993.

Region and County	Vehicle Miles	Hours of Effort			Total
		Vehicle	Horse	Walk	
Northern Region					
Box Elder	--	--	--	--	--
Cache	290	26	--	--	26
Davis	--	--	--	--	--
Morgan	--	--	--	--	--
Rich	--	--	--	--	--
Summit	--	--	--	--	--
Weber	--	--	--	8	8
REGIONAL TOTALS	290	26	--	8	34
Central Region					
Juab	--	--	--	--	--
Salt Lake	--	--	--	--	--
Sanpete	--	--	--	8	8
Tooele	--	2	--	--	2
Utah	--	4	--	10	14
Wasatch	--	3	--	1	4
REGIONAL TOTALS	--	9	--	19	28
Southern Region					
Beaver	--	--	--	--	--
Garfield	--	--	--	--	--
Iron	--	--	--	--	--
Kane	--	--	--	--	--
Millard	--	--	--	--	--
Piute	--	--	--	--	--
Sevier	--	--	--	--	--
Washington	--	--	--	--	--
Wayne	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--
Northeastern Region					
Daggett	--	--	--	--	--
Duchesne	36	3	--	--	3
Uintah	5	--	--	--	--
REGIONAL TOTALS	41	3	--	--	3
Southeastern Region					
Carbon	200	29	--	9	38
Emery	--	--	--	--	--
Grand	23	4	--	--	4
San Juan	20	4	--	--	4
REGIONAL TOTALS	243	36	--	9	45
STATE TOTALS	574	74	--	36	110

Table 10. Summary of blue grouse hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	10	665	304	0.46	4.16	2.75
CACHE	38	2,660	1,311	0.49	16.63	11.88
DAVIS	5	190	133	0.70	1.19	1.20
MORGAN	4	190	152	0.80	1.19	1.38
RICH	10	437	228	0.52	2.73	2.07
SUMMIT	12	437	266	0.61	2.73	2.41
WEBER	20	1,596	988	0.62	9.98	8.95
REGIONAL TOTALS	99	6,175	3,382	0.55	38.60	30.64
CENTRAL REGION						
JUAB	4	95	95	1.00	0.59	0.86
SALT LAKE	1	190	57	0.30	1.19	0.52
SANPETE	11	551	418	0.76	3.44	3.79
TOOELE	13	798	703	0.88	4.99	6.37
UTAH	25	1,349	1,102	0.82	8.43	9.98
WASATCH	12	1,026	361	0.35	6.41	3.27
REGIONAL TOTALS	66	4,009	2,736	0.68	25.06	24.79
SOUTHERN REGION						
BEAVER	6	247	228	0.92	1.54	2.07
GARFIELD	7	703	247	0.35	4.39	2.24
IRON	12	665	836	1.26	4.16	7.57
KANE	3	114	57	0.50	0.71	0.52
MILLARD	10	380	475	1.25	2.38	4.30
PIUTE	6	475	570	1.20	2.97	5.16
SEVIER	19	779	741	0.95	4.87	6.71
WASHINGTON	0	0	0	0.00	0.00	0.00
WAYNE	4	152	95	0.63	0.95	0.86
REGIONAL TOTALS	67	3,515	3,249	0.92	21.97	29.43
NORTHEASTERN REGION						
DAGGETT	6	171	266	1.56	1.07	2.41
DUCHESNE	6	513	95	0.19	3.21	0.86
UINTAH	16	1,083	722	0.67	6.77	6.54
REGIONAL TOTALS	28	1,767	1,083	0.61	11.05	9.81
SOUTHEASTERN REGION						
CARBON	2	114	95	0.83	0.71	0.86
EMERY	2	95	95	1.00	0.59	0.86
GRAND	5	247	285	1.15	1.54	2.58
SAN JUAN	2	19	57	3.00	0.12	0.52
REGIONAL TOTALS	11	475	532	1.12	2.97	4.82
UNKNOWN	6	57	57	1.00	0.36	0.52
STATE TOTALS	277	16,000	11,040	0.69	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 11. Summary of ruffed grouse hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	4	513	95	0.19	4.29	1.43
CACHE	34	2,318	931	0.40	19.37	14.00
DAVIS	5	190	19	0.10	1.59	0.29
MORGAN	2	76	19	0.25	0.63	0.29
RICH	13	665	285	0.43	5.56	4.29
SUMMIT	14	627	475	0.76	5.24	7.14
WEBER	20	1,501	646	0.43	12.54	9.72
REGIONAL TOTALS	92	5,890	2,470	0.42	49.21	37.15
CENTRAL REGION						
JUAB	3	76	76	1.00	0.63	1.14
SALT LAKE	5	247	114	0.46	2.06	1.71
SANPETE	8	228	285	1.25	1.90	4.29
TOOELE	3	190	19	0.10	1.59	0.29
UTAH	21	969	627	0.65	8.10	9.43
WASATCH	9	893	437	0.49	7.46	6.57
REGIONAL TOTALS	49	2,603	1,558	0.60	21.75	23.43
SOUTHERN REGION						
BEAVER	1	38	152	4.00	0.32	2.29
GARFIELD	1	19	0	0.00	0.16	0.00
IRON	6	570	494	0.87	4.76	7.43
KANE	3	133	171	1.29	1.11	2.57
MILLARD	4	209	152	0.73	1.75	2.29
PIUTE	3	247	95	0.38	2.06	1.43
SEVIER	10	342	266	0.78	2.86	4.00
WASHINGTON	0	0	0	0.00	0.00	0.00
WAYNE	5	171	171	1.00	1.43	2.57
REGIONAL TOTALS	33	1,729	1,501	0.87	14.45	22.57
NORTHEASTERN REGION						
DAGGETT	5	228	152	0.67	1.90	2.29
DUCHESNE	6	513	171	0.33	4.29	2.57
UINTAH	16	684	589	0.86	5.71	8.86
REGIONAL TOTALS	27	1,425	912	0.64	11.91	13.72
SOUTHEASTERN REGION						
CARBON	5	228	133	0.58	1.90	2.00
EMERY	1	19	0	0.00	0.16	0.00
GRAND	1	76	38	0.50	0.63	0.57
SAN JUAN	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	7	323	171	0.53	2.70	2.57
UNKNOWN	2	0	38	0.00	0.00	0.57
STATE TOTALS	210	11,971	6,650	0.56	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 12. Summary of blue and ruffed grouse hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	39	1,995	361	0.18	5.48	1.99
CACHE	106	5,415	2,242	0.41	14.88	12.36
DAVIS	17	646	114	0.18	1.78	0.63
MORGAN	18	969	152	0.16	2.66	0.84
RICH	32	1,444	494	0.34	3.97	2.72
SUMMIT	34	1,729	684	0.40	4.75	3.77
WEBER	54	3,249	1,653	0.51	8.93	9.11
REGIONAL TOTALS	300	15,449	5,700	0.37	42.45	31.41
CENTRAL REGION						
JUAB	12	361	304	0.84	0.99	1.68
SALT LAKE	14	418	171	0.41	1.15	0.94
SANPETE	34	1,178	760	0.65	3.24	4.19
TOOELE	39	1,938	722	0.37	5.33	3.98
UTAH	55	2,470	1,900	0.77	6.79	10.47
WASATCH	41	2,223	570	0.26	6.11	3.14
REGIONAL TOTALS	195	8,589	4,427	0.52	23.60	24.40
SOUTHERN REGION						
BEAVER	10	342	399	1.17	0.94	2.20
GARFIELD	13	931	247	0.27	2.56	1.36
IRON	22	1,558	1,444	0.93	4.28	7.96
KANE	9	228	285	1.25	0.63	1.57
MILLARD	16	703	608	0.86	1.93	3.35
PIUTE	8	475	627	1.32	1.31	3.46
SEVIER	55	2,375	1,159	0.49	6.53	6.39
WASHINGTON	2	57	0	0.00	0.16	0.00
WAYNE	13	456	323	0.71	1.25	1.78
REGIONAL TOTALS	148	7,126	5,092	0.71	19.58	28.06
NORTHEASTERN REGION						
DAGGETT	12	380	323	0.85	1.04	1.78
DUCHESNE	14	798	247	0.31	2.19	1.36
UINTAH	40	1,957	1,292	0.66	5.38	7.12
REGIONAL TOTALS	66	3,135	1,862	0.59	8.62	10.26
SOUTHEASTERN REGION						
CARBON	6	285	209	0.73	0.78	1.15
EMERY	7	760	133	0.18	2.09	0.73
GRAND	10	323	361	1.12	0.89	1.99
SAN JUAN	3	38	57	1.50	0.10	0.31
REGIONAL TOTALS	26	1,406	760	0.54	3.86	4.19
UNKNOWN	12	684	304	0.44	1.88	1.68
STATE TOTALS	747	36,390	18,147	0.50	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 13. Summary of forest grouse bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.60	0.68	1.03	0.99	0.97	0.69	1.15	0.18
Cache	0.96	1.07	1.24	0.84	0.75	0.92	0.94	0.41
Davis	0.50	0.71	0.98	0.78	1.02	0.84	0.59	0.18
Morgan	0.64	1.00	0.99	1.23	0.94	0.94	1.06	0.16
Rich	0.39	1.56	0.92	0.42	0.52	0.62	0.76	0.34
Summit	0.63	1.25	0.86	0.89	0.49	0.72	0.77	0.40
Weber	0.85	1.41	0.99	1.00	0.73	0.51	1.01	0.51
<u>REGIONAL TOTALS</u>	<u>0.76</u>	<u>1.12</u>	<u>1.07</u>	<u>0.88</u>	<u>0.74</u>	<u>0.76</u>	<u>0.92</u>	<u>0.37</u>
<u>Central Region</u>								
Juab	0.14	1.14	0.86	0.71	0.88	0.65	0.79	0.84
Salt Lake	0.75	1.05	0.87	0.77	0.81	0.55	1.00	0.41
Sanpete	0.67	1.12	0.84	0.65	0.82	0.98	0.78	0.65
Tooele	0.89	1.24	1.33	1.75	1.03	1.03	1.19	0.37
Utah	0.59	1.04	1.08	0.99	0.91	0.97	0.84	0.77
Wasatch	0.51	0.94	0.74	0.78	0.83	0.76	1.25	0.26
<u>REGIONAL TOTALS</u>	<u>0.62</u>	<u>1.07</u>	<u>0.97</u>	<u>0.90</u>	<u>0.90</u>	<u>0.89</u>	<u>0.92</u>	<u>0.52</u>
<u>Southern Region</u>								
Beaver	1.00	0.91	1.31	0.86	0.85	0.95	1.44	1.17
Garfield	0.27	0.57	1.00	1.27	0.74	0.83	0.48	0.27
Iron	1.21	0.74	1.08	0.79	0.69	0.57	0.78	0.93
Kane	0.14	2.33	1.50	1.25	0.81	0.61	1.45	1.25
Millard	1.14	0.75	1.36	1.26	1.49	0.98	1.59	0.86
Piute	1.42	1.19	1.34	1.00	1.25	1.00	0.75	1.32
Sevier	0.88	1.00	1.18	1.23	1.02	0.94	1.30	0.49
Washington	2.01	0.17	0.10	0.00	0.00	1.83	2.00	0.00
Wayne	0.33	0.90	0.25	0.76	0.86	0.59	1.29	0.71
<u>REGIONAL TOTALS</u>	<u>0.98</u>	<u>0.93</u>	<u>1.16</u>	<u>1.13</u>	<u>0.99</u>	<u>0.87</u>	<u>1.19</u>	<u>0.71</u>
<u>Northeastern Region</u>								
Daggett	1.19	1.10	0.65	0.42	0.81	0.97	1.03	0.85
Duchesne	1.07	1.29	0.98	0.92	0.69	0.78	0.68	0.31
Uintah	1.19	1.63	0.91	0.67	1.09	1.00	1.01	0.66
<u>REGIONAL TOTALS</u>	<u>1.16</u>	<u>1.43</u>	<u>0.88</u>	<u>0.69</u>	<u>0.93</u>	<u>0.93</u>	<u>0.94</u>	<u>0.59</u>
<u>Southeastern Region</u>								
Carbon	0.83	0.92	0.48	0.37	0.47	0.64	0.83	0.73
Emery	0.65	0.96	1.06	0.60	0.81	0.78	0.88	0.18
Grand	1.29	1.91	0.81	1.14	1.12	2.14	0.52	1.12
San Juan	0.67	1.00	0.67	1.00	0.83	0.45	1.57	1.50
<u>REGIONAL TOTALS</u>	<u>0.81</u>	<u>1.14</u>	<u>0.79</u>	<u>0.57</u>	<u>0.69</u>	<u>0.77</u>	<u>0.79</u>	<u>0.54</u>
Unknown Counties	0.00	0.55	0.70	0.76	0.00	0.00	0.00	0.44
<u>STATE TOTALS</u>	<u>0.79</u>	<u>1.09</u>	<u>1.04</u>	<u>0.90</u>	<u>0.83</u>	<u>0.82</u>	<u>0.96</u>	<u>0.50</u>

Table 14. Percentage distribution of forest grouse harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	2.59	1.62	3.83	5.02	6.51	5.53	4.83	1.99
Cache	21.23	14.98	21.10	15.18	15.47	17.45	17.65	12.36
Davis	2.50	1.83	3.14	1.96	3.28	2.89	2.48	0.63
Morgan	3.02	1.13	2.64	6.93	3.28	3.29	2.75	0.84
Rich	2.24	4.05	4.55	2.60	2.89	3.74	3.19	2.72
Summit	2.93	4.65	3.55	4.61	3.45	6.83	3.83	3.77
Weber	10.44	6.65	9.53	10.35	8.07	5.03	9.82	9.11
REGIONAL TOTALS	44.96	34.93	48.37	46.65	42.96	44.77	44.55	31.41
<u>Central Region</u>								
Juab	0.26	1.29	1.12	1.32	0.78	0.75	1.48	1.68
Salt Lake	1.81	1.18	1.40	1.50	0.72	0.80	2.12	0.94
Sanpete	4.57	6.43	4.70	4.56	5.40	4.34	3.31	4.19
Tooele	4.74	3.94	4.17	5.02	6.68	4.04	2.52	3.98
Utah	8.02	10.22	9.47	7.62	8.74	7.48	10.38	10.47
Wasatch	3.02	3.94	3.05	5.47	2.89	4.44	4.59	3.14
REGIONAL TOTALS	22.43	27.04	23.94	25.49	25.21	21.83	24.39	24.40
<u>Southern Region</u>								
Beaver	0.86	1.56	0.65	0.82	1.61	2.59	2.08	2.20
Garfield	0.26	0.64	0.74	1.73	1.45	1.00	0.84	1.36
Iron	3.53	1.40	1.77	1.41	1.39	1.94	1.56	7.96
Kane	0.08	0.37	0.18	0.23	0.72	0.95	1.28	1.57
Millard	3.45	1.13	1.77	3.51	2.89	2.24	3.23	3.35
Piute	2.33	2.05	2.80	0.96	3.34	2.04	0.84	3.46
Sevier	6.56	11.35	10.84	9.90	7.90	10.27	10.70	6.39
Washington	0.52	0.05	0.03	0.00	0.00	0.55	0.48	0.00
Wayne	0.17	0.48	0.09	0.73	1.00	0.65	0.72	1.78
REGIONAL TOTALS	17.77	19.09	18.92	19.92	20.31	22.23	21.72	28.06
<u>Northeastern Region</u>								
Daggett	3.19	1.73	0.93	0.46	1.39	1.65	1.28	1.78
Duchesne	2.67	4.75	1.55	1.60	1.39	2.24	1.20	1.36
Uintah	6.03	8.27	3.64	4.33	4.90	4.99	4.67	7.12
REGIONAL TOTALS	11.91	14.76	6.14	6.38	7.68	8.87	7.15	10.26
<u>Southeastern Region</u>								
Carbon	0.86	0.64	0.43	0.50	1.34	0.70	0.20	1.15
Emery	0.95	1.29	1.15	0.41	1.17	0.35	0.92	0.73
Grand	0.77	1.13	0.68	0.36	1.06	0.75	0.64	1.99
San Juan	0.34	0.43	0.12	0.18	0.28	0.50	0.44	0.31
REGIONAL TOTALS	2.93	3.51	2.40	1.46	3.84	2.29	2.20	4.19
Unknown Counties	0.00	0.64	0.21	0.73	0.00	0.00	0.00	1.68
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 15. Percentage distribution of forest grouse hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	4.65	2.60	3.84	4.55	5.60	6.59	4.04	5.48
Cache	14.69	15.26	17.65	16.22	17.22	15.55	18.07	14.88
Davis	3.90	2.84	3.32	2.25	2.69	2.82	4.04	1.78
Morgan	3.15	1.24	2.77	5.08	2.92	2.86	2.50	2.66
Rich	4.05	2.84	5.13	5.53	4.63	4.95	4.04	3.97
Summit	4.50	4.08	4.26	4.63	5.83	7.73	4.78	4.75
Weber	9.00	5.14	9.94	9.34	9.21	8.10	9.36	8.93
<u>REGIONAL TOTALS</u>	<u>43.93</u>	<u>34.02</u>	<u>46.93</u>	<u>47.60</u>	<u>48.10</u>	<u>48.61</u>	<u>46.84</u>	<u>42.45</u>
<u>Central Region</u>								
Juab	1.50	1.24	1.35	1.68	0.74	0.94	1.81	0.99
Salt Lake	2.40	1.24	1.67	1.76	0.74	1.19	2.04	1.15
Sanpete	4.65	6.27	5.77	6.31	5.51	3.64	4.08	3.24
Tooele	3.90	3.49	3.26	2.58	5.42	3.23	2.04	5.33
Utah	10.49	10.76	9.10	6.88	8.01	6.34	11.98	6.79
Wasatch	4.50	4.61	4.29	6.31	2.92	4.79	3.54	6.11
<u>REGIONAL TOTALS</u>	<u>27.44</u>	<u>27.63</u>	<u>25.46</u>	<u>25.52</u>	<u>23.33</u>	<u>20.13</u>	<u>25.50</u>	<u>23.60</u>
<u>Southern Region</u>								
Beaver	1.05	1.89	0.51	0.86	1.57	2.25	1.39	0.94
Garfield	1.05	1.24	0.77	1.23	1.62	0.98	1.69	2.56
Iron	2.25	2.07	1.71	1.60	1.67	2.82	1.93	4.28
Kane	0.75	0.17	0.12	0.16	0.74	1.27	0.85	0.63
Millard	1.35	1.65	1.35	2.50	1.62	1.88	1.96	1.93
Piute	1.20	1.89	2.16	0.86	2.22	1.68	1.08	1.31
Sevier	6.30	12.48	9.52	7.21	6.44	8.92	7.94	6.53
Washington	0.30	0.35	0.32	0.08	0.23	0.25	0.23	0.16
Wayne	0.75	0.59	0.38	0.86	0.97	0.90	0.54	1.25
<u>REGIONAL TOTALS</u>	<u>15.00</u>	<u>22.36</u>	<u>16.88</u>	<u>15.36</u>	<u>17.08</u>	<u>20.95</u>	<u>17.60</u>	<u>19.58</u>
<u>Northeastern Region</u>								
Daggett	2.10	1.71	1.48	0.98	1.44	1.39	1.19	1.04
Duchesne	3.45	4.02	1.64	1.56	1.67	2.37	1.69	2.19
Uintah	4.35	5.56	4.13	5.82	3.75	4.09	4.47	5.38
<u>REGIONAL TOTALS</u>	<u>9.90</u>	<u>11.30</u>	<u>7.26</u>	<u>8.36</u>	<u>6.85</u>	<u>7.86</u>	<u>7.36</u>	<u>8.62</u>
<u>Southeastern Region</u>								
Carbon	0.45	0.76	0.93	1.23	2.36	0.90	0.23	0.78
Emery	1.80	1.47	1.12	0.61	1.20	0.37	1.00	2.09
Grand	0.75	0.65	0.87	0.29	0.79	0.29	1.19	0.89
San Juan	0.75	0.47	0.19	0.16	0.28	0.90	0.27	0.10
<u>REGIONAL TOTALS</u>	<u>3.75</u>	<u>3.37</u>	<u>3.12</u>	<u>2.29</u>	<u>4.63</u>	<u>2.45</u>	<u>2.70</u>	<u>3.86</u>
Unknown Counties	0.00	1.30	0.32	0.86	0.00	0.00	0.00	1.88
<u>STATE TOTALS</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>	<u>100.00</u>

Table 16. Statewide summary of forest grouse harvest statistics, 1963-93.

Year	Total				Total Harvest				Hunter-Days				Grouse/Hunter-Day				Grouse/Hunter			
	Hunters	Ruffed	Percent	Blue	Percent	Unknown	Percent	Total	Alford	Ruffed	Blue	Total	Ruffed	Blue	Total	Ruffed	Blue	Total		
1963	7,425	5,470	40.20	7,372	54.17	766	5.63	13,608	12,313	0.44	0.66	1.11	0.74	0.99	1.83					
1964	6,487	5,354	42.19	6,685	52.68	652	5.14	12,691	10,566	0.51	0.63	1.20	0.82	1.03	1.96					
1965	6,005	3,225	37.20	4,924	56.80	520	6.00	8,669	10,504	0.31	0.47	0.83	0.54	0.82	1.44					
1966	6,683	6,966	56.54	4,659	37.81	696	5.65	12,321	12,387	0.56	0.38	0.99	1.04	0.68	1.84					
1967	9,420	8,476	48.36	6,773	38.65	2,277	12.99	17,526	17,773	0.48	0.38	0.99	0.87	0.69	1.86					
1968	13,061	17,048	52.59	12,604	38.88	2,762	8.52	32,414	26,537	0.64	0.47	1.22	1.30	0.96	2.48					
1969	12,523	9,490	44.14	10,419	48.46	1,589	7.39	21,498	24,572	0.38	0.42	0.87	0.76	0.83	1.72					
1970	12,775	15,590	48.87	13,515	42.37	2,793	8.76	31,898	26,619	0.59	0.51	1.20	1.22	1.06	2.50					
1971	13,363	15,759	49.40	13,749	43.10	2,393	7.50	31,901	29,100	0.54	0.47	1.10	1.18	1.03	2.39					
1972	16,640	20,648	48.56	19,221	45.21	2,649	6.23	42,518	38,940	0.53	0.49	1.09	1.24	1.16	2.56					
1973	17,588	7,153	15.81	36,846	81.46	1,233	2.73	45,232	44,738	0.16	0.82	1.01	0.41	2.09	2.57					
1974	21,920	24,561	39.34	32,236	51.63	5,642	9.04	62,439	55,258	0.44	0.58	1.13	1.12	1.47	2.85					
1975	20,102	15,750	37.09	23,138	54.49	3,573	8.41	42,461	50,579	0.31	0.45	0.84	0.78	1.15	2.11					
1976	21,186	23,551	37.13	35,660	56.21	4,225	6.66	63,436	56,422	0.42	0.63	1.12	1.11	1.68	2.99					
1977	19,188	15,766	37.12	23,455	55.22	3,256	7.67	42,477	48,746	0.37	0.48	0.87	0.82	1.22	2.21					
1978	25,318	30,340	37.20	46,651	57.20	4,567	5.60	81,558	72,732	0.42	0.64	1.12	1.20	1.84	3.22					
1979	21,993	23,156	38.69	33,070	55.25	3,625	6.06	59,851	57,404	0.40	0.58	1.04	1.05	1.50	2.61					
1980	19,511	15,457	33.96	27,588	60.60	2,477	5.44	45,522	49,899	0.31	0.55	0.91	0.79	1.41	2.33					
1981	14,329	8,557	30.68	17,852	64.00	1,485	5.32	27,894	34,305	0.25	0.52	0.81	0.60	1.25	1.95					
1982	12,384	7,509	34.48	12,138	55.74	2,131	9.79	21,778	28,767	0.26	0.42	0.76	0.60	0.98	1.76					
1983	13,414	11,366	37.78	16,955	56.35	1,767	5.87	30,088	34,530	0.33	0.49	0.87	0.84	1.26	2.24					
1984	11,511	6,780	33.24	12,647	62.01	969	4.75	20,396	27,244	0.25	0.46	0.75	0.59	1.10	1.77					
1985	12,646	8,701	37.67	13,416	58.09	980	4.24	23,097	31,290	0.28	0.43	0.74	0.69	1.06	1.83					
1986	12,117	8,819	36.95	14,156	59.31	894	3.75	23,869	30,312	0.29	0.47	0.79	0.73	1.17	1.97					
1987	14,831	15,811	34.88	28,068	61.92	1,447	3.19	45,326	41,428	0.38	0.68	1.09	1.07	1.89	3.06					
1988	16,947	19,100	35.66	31,556	58.91	2,906	5.43	53,562	51,726	0.37	0.61	1.04	1.13	1.86	3.16					
1989	16,987	16,323	35.88	27,794	61.10	1,370	3.01	45,487	50,631	0.32	0.55	0.90	0.96	1.64	2.68					
1990	14,591	11,010	28.29	26,115	67.10	1,797	4.62	38,922	44,452	0.25	0.59	0.83	0.75	1.79	2.53					
1991	14,421	12,073	34.60	21,310	61.07	1,514	4.34	34,897	42,517	0.35	0.50	0.82	0.84	1.48	2.42					
1992	15,000	15,017	33.73	29,146	65.47	355	0.80	44,518	46,136	0.33	0.63	0.96	1.00	1.94	2.97					
1993	12,029	6,650	36.65	11,040	60.84	457	2.52	18,147	36,390	0.18	0.30	0.50	0.55	0.92	1.51					
Totals																				
(1963-93)	452,395	411,476	--	620,758	--	63,767	--	1,096,001	1,144,817	--	--	--	--	--	--	--	--	--	--	
Averages																				
(1963-92)	14,679	13,494	38.61	20,324	55.38	2,110	6.02	35,928	36,948	0.38	0.53	0.97	0.89	1.30	2.33					

Table 17. Blue and ruffed grouse harvest statistics and hunt regulations, 1963-1993.

Year	Total		Blue		Forest		Total		Hunter Days		Season Length		Aggregate	
	Harvest	Grouse	Harvest	Grouse	Harvest	Grouse	Afield	Total	Afield	Total	Open	Close	Bag Limits	
													Days	Possession
1963	5,470	7,372	13,608	7,425	12,313	?	?	?	?	?	?	?	4	8
1964	5,354	6,685	12,691	6,487	10,566	9/26	10/16	21	4	8				
1965	3,225	4,924	8,669	6,005	105,074	9/25	10/22	28	4	8				
1966	6,966	4,659	12,321	6,683	12,387	9/24	10/21	28	4	8				
1967	8,476	6,773	17,526	9,420	17,773	9/23	10/31	39	4	8				
1968	17,048	12,604	32,414	13,061	26,537	9/28	10/29	32	4	8				
1969	9,490	10,419	21,498	12,523	24,572	9/27	11/02	37	4	8				
1970	15,590	13,515	31,898	12,775	26,619	9/26	11/06	42	4	8				
1971	15,759	13,749	31,901	13,363	29,100	9/25	11/30	67	4	8				
1972	20,648	19,221	42,518	16,640	38,940	9/23	11/30	69	4	8				
1973	7,153	36,846	45,232	17,588	44,738	9/22	11/30	70	4	8				
1974	24,561	32,236	62,439	21,920	55,258	9/28	11/30	64	4	8				
1975	15,750	23,138	42,461	20,102	50,579	9/20	11/30	72	4	8				
1976	23,551	35,660	63,436	21,186	56,422	9/18	11/30	74	4	8				
1977	15,766	23,455	42,477	19,188	48,746	9/17	11/30	75	4	8				
1978	30,340	46,651	81,558	25,318	72,732	9/16	11/30	76	4	8				
1979	23,156	33,070	59,851	21,993	57,404	9/15	11/30	77	4	8				
1980	15,457	27,588	45,522	19,511	49,899	9/20	11/30	72	4	8				
1981	8,557	17,852	27,894	14,329	34,305	9/19	11/30	73	4	8				
1982	7,509	12,138	21,778	12,384	28,767	9/18	11/30	74	4	8				
1983	11,366	16,955	30,088	13,414	34,530	9/17	11/30	75	4	8				
1984	6,780	12,647	20,396	11,511	27,244	9/15	11/30	77	4	8				
1985	8,701	13,416	23,097	12,646	31,290	9/14*	11/30	78	4	8				
1986	8,819	14,156	23,869	12,117	30,312	9/13	11/30	79	4	8				
1987	15,811	28,068	45,326	14,831	41,428	9/12	11/30	80	4	8				
1988	19,100	31,556	53,562	16,947	51,726	9/11	11/30	82	4	8				
1989	16,323	27,794	45,487	16,987	50,631	9/09	11/30	82	4	8				
1990	11,010	26,115	38,922	14,591	44,452	9/08	11/30	82	4	8				
1991	12,073	21,310	34,897	14,421	42,517	9/14	11/30	77	4	8				
1992	15,017	29,146	44,518	15,000	46,136	9/12	11/30	79	4	8				
1993	6,650	11,040	18,147	12,029	36,390	9/11	11/30	82	4	8				

* Season opener changed to the second Saturday in September from the third Saturday in September.

** From 1950 to 1963 a grouse stamp was required to hunt any grouse. In 1964, the entire state was opened to hunting without a stamp.

Table 18. Forest grouse field bag check summary, 1993.

Region and County	ALL HUNTS				COMPLETE HUNTS					
	Total Parties	Total Hunters	Total Hours	Total Birds	Complete Hunts	Total Hunters	Total Hours	Total Birds	Birds/ 100 Hr	Birds/ Hunter
Northern Region										
Box Elder	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Central Region										
Juab	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southern Region										
Beaver	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--
Plute	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Northeastern Region										
Daggett	--	--	--	--	--	--	--	--	--	--
Puchessne	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southeastern Region										
Carbon	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
STATE TOTALS										

Table 19. Forest grouse hunter success trend as determined by field bag checks, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	2.83	50	2.60	42	2.00	300	1.43	30	--	--	--	--
Cache	1.15	28	0.63	8	--	--	0.23	--	0.58	--	--	--
Davis	0.50	16	0.50	40	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	0.52	14	0.32	7	--	--	--	--	0.77	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	0.56	20	0.53	19	1.33	33	0.32	--	--	--	--	--
REGIONAL TOTALS	0.88	23	0.62	14	1.60	57	0.47	55	0.70	--	--	--
Central Region												
Juab	3.25	108	2.30	56	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	0.86	33	--	--	--	--	--	--	--	--
Towele	3.00	133	2.00	29	1.60	47	0.22	8	--	--	--	--
Utah	0.86	20	1.90	39	0.97	31	0.41	11	0.82	18	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1.07	26	1.41	33	1.04	33	0.36	11	0.82	18	--	--
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	2.75	550	--	--	--	--	--	--	--	--
Iron	3.75	200	2.25	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	3.00	150	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	4.00	500	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	3.64	190	2.50	1000	--	--	--	--	--	--	--	--
Northeastern Region												
Daggett	1.50	38	0.85	32	0.60	9	2.22	43	1.17	50	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	0.47	24	0.32	7	1.95	60	3.33	111	1.50	100	--	--
REGIONAL TOTALS	0.52	26	0.40	9	1.34	30	2.50	55	1.25	59	--	--
Southeastern Region												
Carbon	--	--	1.20	32	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	1.20	32	--	--	--	--	--	--	--	--
STATE TOTALS	0.94	25	0.68	16	1.14	33	0.50	32	0.74	87	--	--

Table 20. Sex and age composition of harvested blue grouse, 1993.

Region and County	Sample Size	Adults			Young			Young/ 100 Adults	Young/ 100 Hens
		M	F	Total	M	F	Total		
Northern Region									
Box Elder	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Central Region									
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	17	1	3	4	4	9	13	325	433
Sanpete	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	17	1	3	4	4	9	13	325	433
Southern Region									
Beaver	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Northeastern Region									
Daggett	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Southeastern Region									
Carbon	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
STATE TOTALS	17	1	3	4	4	9	13	325	433

Table 21. Sex and age composition of harvested ruffed grouse, 1993.

Region and County	Sample Size	Adults			Young			Young/ 100 Adults	Young/ 100 Hens
		M	F	Total	M	F	Total		
Northern Region									
Box Elder	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Central Region									
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Southern Region									
Beaver	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Northeastern Region									
Daggett	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Southeastern Region									
Carbon	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
STATE TOTALS	--	--	--	--	--	--	--	--	--

QUAIL

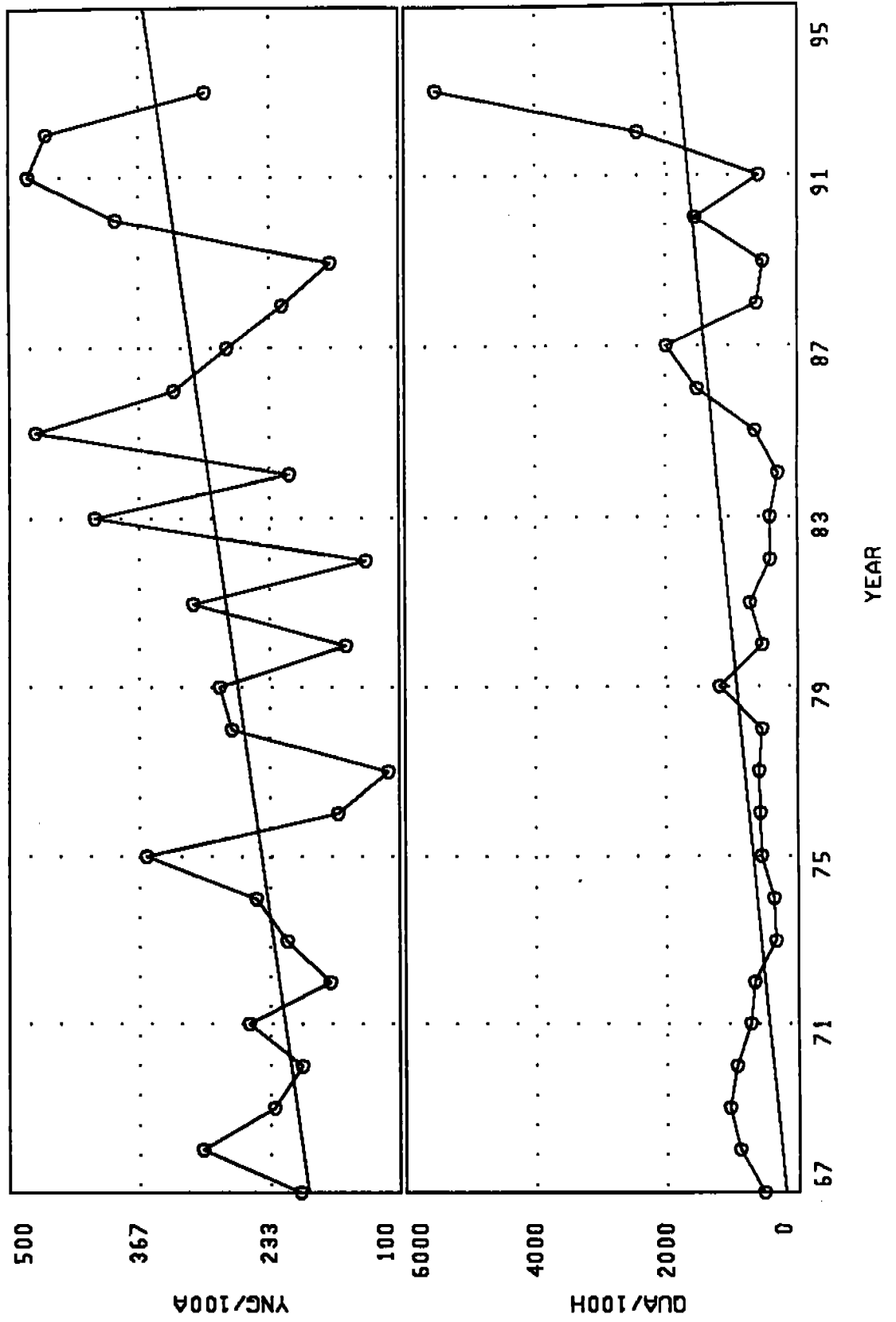
SUMMARY

Production of California and Gambel's quail decreased slightly from 1992.

Statewide harvest statistics, when compared to 1992, showed an increase in total hunters and in total harvest. Hunter success (birds per hunter-day) increased 12 percent and remained below average statewide. Hunter-days afield increased 48 percent from 1992. The Southern Region accounted for 57 percent of the statewide quail harvest and 43 percent of quail hunter pressure.



FIGURE 1. QUAIL PRODUCTION INDICES, 1967-93



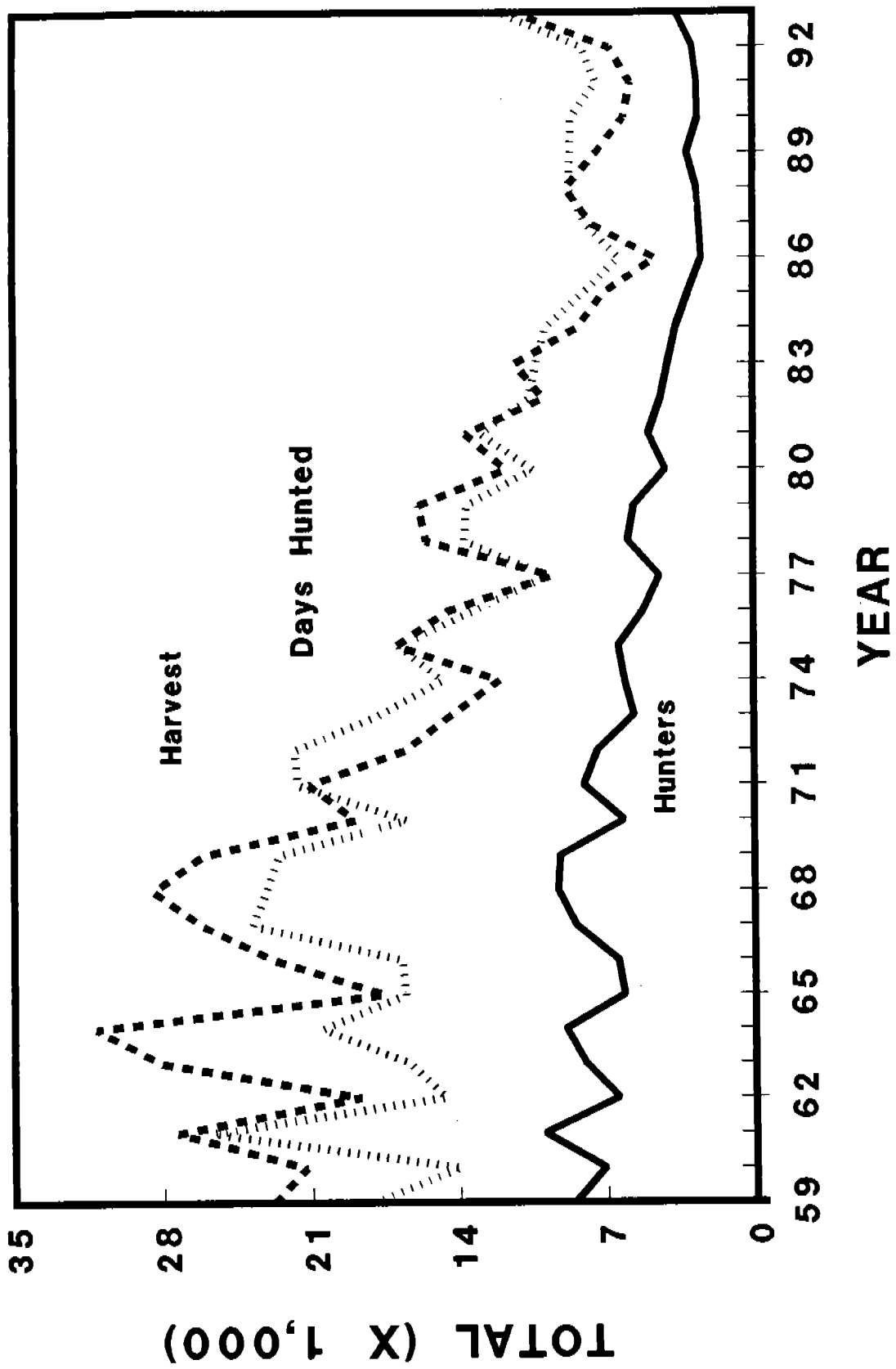


Figure 2. Statewide trends of quail harvest statistics, 1959-93.

Brood Counts

Results of the annual random brood counts for California quail for 1993 are shown in Table 1 of this section. Long-term trends of young per adult ratios, mean brood size and quail observed per 100 hours are shown in Tables 2-4 and Figure 1. Gambel's quail long period waterhole count trends are in Table 10. Survey results for 1993 compared to 1992 and the previous 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total quail observed	719	+885	+168
Young per 100 adults	299	-35	-13
Mean brood size	6.07	-19	-20
Quail observed per 100 hours	5,531	+127	+423
Total hours effort	18	+500	-48

Brood count effort increased 500 percent in 1993. Seven hundred and nineteen quail were observed in 1993 which was 168 percent above average. Total hours of effort on California quail brood counts was 13 which is 48 percent below average for the last 10 years. The production index of young per 100 adults for Gambel's quail was 9 percent lower than what it was the previous year. Production statewide decreased to 13 percent below the long-term average.

Harvest

Results of the annual hunter questionnaire for 1993 are shown in Table 5. Long-term trends of quail bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 6-8, and total statewide harvest statistics in Table 9.

Comparison of the 1993 season to 1992 and the previous 34-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Quail hunters	3,649	+28	-33
Quail harvested	11,192	+65	-24
Hunter-days afield	11,952	+48	-12
Quail per hunter-day	0.94	+12	-11
Quail per hunter	3.07	+30	+17

Quail hunters increased 28 percent from 1992, but remain 33 percent below the long-term average. Quail harvest increased 65 percent from 1992.

Harvest for 1993 increased 28 percent from 1992 and was 33 percent below average.
Long-term quail harvest statistics are shown in Figures 2 and 3.

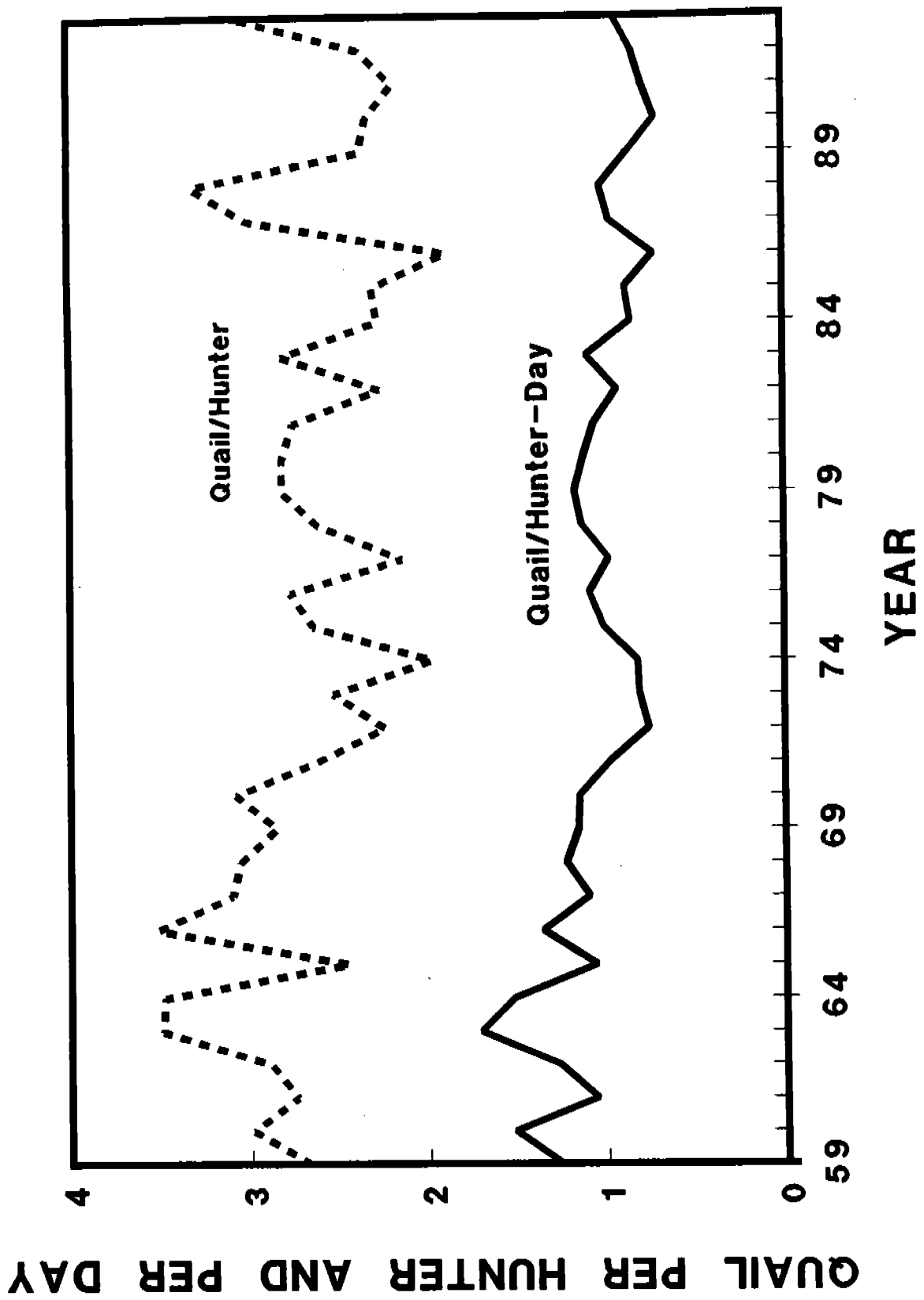


Figure 3. Statewide trends of quail hunter success rates, 1959-93.

Table 1. Quail summer inventory, 1993.

Region and County	Distinct		Mixed Young		Total Adults w/o Young	Total Young	Young/100 Adults		Hours of Effort		Birds/100 Hr
	#	Broods	Mean Brood	Young			Adults	Young	Vehicle Miles	Horse	
Northern Region											
Box Elder	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane*	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Plute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington*	56	108	339	6.05	12	126	38	158	465	294	8 7,788
Wayne*	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
56	108	339	6.05	12	126	38	158	465	294	8	7,788
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	1	1	4	4.00	--	--	--	1	4	400	2 250
Uintah	3	3	21	7.00	10	49	8	21	70	333	2 3 3,033
REGIONAL TOTALS											
4	4	25	6.25	10	49	8	22	74	74	336	2 3 5 1,920
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS											
60	112	364	6.07	22	175	46	180	539	299	35	2 3 13 5,531
STATE TOTALS											

*Washington, Kane and Wayne Counties, Gambel's quail; all others, California quail.

Table 2. Trend of quail young per 100 adults, 1983-93.

Region and County	Year													Average 1983-1992
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-1992		
Northern Region														
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	
Morgan	550	--	1,050	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	125	125	--	--	1,400	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	130	125	1,050	--	1,400	224	--	656	--	--	--	--	598	
Central Region														
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	40	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	700	700	220	--	--	--	900	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	40	--	700	700	220	--	--	900	--	--	--	--	512	
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane*	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	133	133	138	44	545	790	--	179	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	
Washington*	624	224	571	412	250	126	194	367	--	--	--	294	--	
Wayne*	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	544	213	434	456	272	242	194	252	--	--	294	--	326	
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	300	--	--	375	--	--	400	--	
Uintah	--	--	--	--	--	126	420	667	--	370	333	--	--	
REGIONAL TOTALS	--	--	--	--	--	177	420	667	375	370	336	402	--	
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	--	767	--	--	
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	767	--	--	767	
STATE TOTALS	134	412	213	473	331	276	220	391	480	462	299	339	339	

*Washington, Kane and Wayne Counties, Gambel's quail; all others, California quail.

Table 3. Trend of average brood size for quail, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92		
Northern Region														
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	6.33	--	--	11.80	--	--	--	--	--	--	--	
Morgan	11.00	--	10.50	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	3.75	--	--	14.00	14.00	--	11.80	--	--	--	--	9.37	
REGIONAL TOTALS	5.20	--	10.50	--	14.00	5.33	--	11.80	--	--	--	--	9.37	
Central Region														
Inab	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	3.00	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	7.00	7.50	11.00	--	--	--	9.00	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.00	--	7.00	7.50	11.00	--	--	--	9.00	--	--	--	7.50	
Southern Region														
Benver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane*	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	3.00	4.00	9.00	1.80	12.00	11.28	--	12.50	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	
Washington*	13.50	5.09	8.43	7.85	5.59	4.64	--	11.00	--	--	6.05	--	--	
Wayne*	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	11.17	5.06	8.56	6.64	6.16	7.22	--	11.00	--	--	6.05	--	7.97	
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	9.00	--	--	--	--	4.00	--	--	
Uintah	--	--	--	--	--	8.50	4.50	6.70	--	7.40	7.00	--	--	
REGIONAL TOTALS	--	--	--	--	--	8.15	4.50	6.70	--	7.40	6.25	--	6.69	
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	7.67	--	--	--	
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	7.67	--	--	7.67	
STATE TOTALS	9.71	5.06	8.62	6.70	6.62	7.25	4.50	10.45	9.40	7.50	6.07	--	7.54	

*Washington, Kane and Wayne Counties, Gambel's quail; all others, California quail.

Table 4. Trend of quail observed per 100 hours, 1983-93.

Region and County	Year													Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92		
Northern Region														
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	1,100	--	--	--	--	--	--	--	--	--	--	
Morgan	222	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	825	--	1,500	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	511	--	1,500	1,100	--	--	--	--	--	--	--	778	--	
Central Region														
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	1,400	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	320	2,000	1,600	--	--	--	--	1,000	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	247	--	320	2,000	1,600	--	--	--	1,000	--	--	1,033	--	
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	
Kane*	--	--	--	--	--	--	--	--	--	--	--	--	--	
Millard	350	177	344	867	1,303	1,271	--	975	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	
Washington*	605	380	783	1,604	2,029	530	53	1,050	--	--	--	7,788	--	
Wayne*	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	580	357	663	1,484	1,958	527	53	1,013	--	--	--	7,788	829	
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	42	--	--	--	356	--	--	475	--	--	250	--	--	
Uintah	100	--	--	--	1,800	371	767	--	4,700	3,033	--	--	--	
REGIONAL TOTALS	58	--	--	--	717	371	767	475	4,700	1,920	478	--	--	
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	1,300	--	--	--	
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	1,300	--	--	1,300	
STATE TOTALS	411	297	645	1,519	1,984	622	524	1,564	580	2,433	5,531	1,058	--	

*Washington, Kane and Wayne Counties, Gambel's quail; all others, California quail.

Table 5. Summary of quail hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	7	209	76	0.36	1.75	0.68
CACHE**	7	209	0	0.00	1.75	0.00
DAVIS	4	152	190	1.25	1.27	1.70
MORGAN**	3	133	19	0.14	1.11	0.17
RICH**	0	0	0	0.00	0.00	0.00
SUMMIT**	0	0	0	0.00	0.00	0.00
WEBER	17	570	418	0.73	4.77	3.74
REGIONAL TOTALS	38	1,273	703	0.55	10.65	6.28
CENTRAL REGION						
JUAB	1	38	57	1.50	0.32	0.51
SALT LAKE	3	76	0	0.00	0.64	0.00
SANPETE**	1	19	19	1.00	0.16	0.17
TOOELE	4	57	0	0.00	0.48	0.00
UTAH	34	1,976	950	0.48	16.54	8.49
WASATCH**	1	0	0	0.00	0.00	0.00
REGIONAL TOTALS	44	2,166	1,026	0.47	18.13	9.17
SOUTHERN REGION						
BEAVER	1	19	0	0.00	0.16	0.00
GARFIELD	0	0	0	0.00	0.00	0.00
IRON	4	152	247	1.63	1.27	2.21
KANE	0	0	0	0.00	0.00	0.00
MILLARD	11	855	494	0.58	7.15	4.41
PIUTE	0	0	0	0.00	0.00	0.00
SEVIER	7	665	285	0.43	5.56	2.55
WASHINGTON	42	3,420	5,377	1.57	28.62	48.05
WAYNE	3	19	0	0.00	0.16	0.00
REGIONAL TOTALS	68	5,130	6,403	1.25	42.93	57.22
NORTHEASTERN REGION						
DAGGETT	0	0	0	0.00	0.00	0.00
DUCHESNE	19	969	1,007	1.04	8.11	9.00
UINTAH	18	1,083	684	0.63	9.06	6.11
REGIONAL TOTALS	37	2,052	1,691	0.82	17.17	15.11
SOUTHEASTERN REGION						
CARBON	2	57	76	1.33	0.48	0.68
EMERY	16	969	893	0.92	8.11	7.98
GRAND	1	38	0	0.00	0.32	0.00
SAN JUAN	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	19	1,064	969	0.91	8.90	8.66
UNKNOWN	5	266	399	1.50	2.23	3.57
STATE TOTALS	211	11,952	11,192	0.94	100.00	100.00

*Total hunter-trips from questionnaire returns.

**Closed to quail hunting in 1993.

Table 6. Summary of quail bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.00	0.23	0.80	0.90	0.71	0.38	1.21	0.36
Cache	1.00	0.43	0.22*	0.20*	0.10*	0.00*	1.00*	0.00*
Davis	0.44	0.43	0.74	0.67	0.15	0.83	0.60	1.25
Morgan	1.00	2.00	1.00*	0.00*	2.00*	0.00*	0.00*	0.14*
Rich	0.00	0.00	1.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Summit	0.40	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Weber	0.69	0.11	0.35	0.21	0.50*	0.54	0.56	0.73
REGIONAL TOTALS	0.50	0.35	0.60	0.38	0.39	0.41	0.63	0.55
<u>Central Region</u>								
Juab	2.00	0.00	1.38	0.00	0.19	7.25	0.00	1.50
Salt Lake	0.43	0.83	1.18	0.50	0.42	2.17	1.89	0.00
Sanpete	1.00	0.86	0.80*	0.25*	0.00*	0.00*	0.00*	1.00*
Tooele	0.33	1.00	1.24*	3.25*	0.60*	0.29*	0.00*	0.00*
Utah	0.72	0.59	0.46	0.84	0.75	0.61	0.54	0.48
Wasatch	0.00	0.50	1.13*	0.00	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.69	0.63	0.80	0.87	0.55	0.88	0.61	0.47
<u>Southern Region</u>								
Beaver	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	5.00	0.00	0.00	0.00	0.00	0.00
Iron	0.00	0.00	0.00	1.67	0.00	0.00	0.00	1.63
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	1.55	0.96	0.00	0.90	1.06	0.08	1.50	0.58
Piute	1.00	2.25	0.00	0.00	0.00	0.00	0.00	0.00
Sevier	0.00	0.00	1.50	0.00	0.00	1.80	0.47	0.43
Washington	1.27	2.33	2.30	1.26	0.60	0.84	1.04	1.57
Wayne	0.00	0.00	2.00	0.80	0.00	0.00	0.00	0.00
REGIONAL TOTALS	1.15	1.93	2.08	1.19	0.66	0.71	1.01	1.25
<u>Northeastern Region</u>								
Daggett	0.00	0.50	0.00	0.00	0.00	1.00	0.00	0.00
Duchesne	0.44	1.86	0.89	0.62	0.91	1.16	1.01	1.04
Uintah	0.70	0.52	0.87	0.73	0.98	0.47	0.90	0.63
REGIONAL TOTALS	0.63	0.81	0.88	0.68	0.95	0.65	0.95	0.82
<u>Southeastern Region</u>								
Carbon	0.00	1.00	0.38	5.00	1.11	4.50	1.12	1.33
Emery	1.14	1.06	1.11	0.50	1.86	2.11	0.97	0.92
Grand	0.00	0.50	0.80	0.00	2.00	0.00	0.00	0.00
San Juan	0.00	0.00	0.00	8.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	0.29	0.85	0.77	2.00	1.68	2.85	1.02	0.91
Unknown counties	0.00	0.00	2.00	0.00	0.00	0.00	0.00	1.50
STATE TOTALS	0.72	0.97	1.02	0.86	0.71	0.78	0.84	0.94

*Closed Season

Table 7. Percentage distribution of quail harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.00	0.96	1.50	2.53	4.05	1.51	4.45	0.68
Cache	0.44	1.92	0.37*	0.28*	0.34*	0.00*	1.31*	0.00*
Davis	3.59	1.92	6.98	1.69	1.35	1.51	2.36	1.70
Morgan	0.90	0.64	0.18*	0.00*	0.68*	0.00*	0.00*	0.17*
Rich	0.00	0.00	0.18*	0.00*	0.00*	0.00*	0.00*	0.00*
Summit	0.90	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Weber	4.94	0.32	1.32	1.97	5.41	2.11	3.67	3.74
REGIONAL TOTALS	10.80	5.76	10.56	6.46	11.83	5.12	11.78	6.28
<u>Central Region</u>								
Juab	0.90	0.00	4.15	0.00	1.69	8.74	0.00	0.51
Salt Lake	2.69	1.60	3.77	0.84	2.70	3.92	4.45	0.00
Sanpete	0.44	3.84	0.75*	0.56*	0.00*	0.00*	0.00*	0.17*
Tooele	0.90	0.64	6.79*	3.65*	1.01*	0.60*	0.00*	0.00*
Utah	34.24	18.58	9.43	21.35	16.89	17.17	12.31	8.49
Wasatch	0.00	0.64	5.09*	0.00*	0.00*	0.00	0.00*	0.00*
REGIONAL TOTALS	3.18	25.32	30.00	26.41	22.30	30.43	16.76	9.17
<u>Southern Region</u>								
Beaver	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	2.83	0.00	0.00	0.00	0.00	0.00
Iron	0.00	0.00	1.88	1.40	0.00	0.00	0.00	2.21
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	7.65	7.69	0.00	5.34	5.74	0.90	6.28	4.41
Piute	0.44	2.88	0.00	0.00	0.00	0.00	0.00	0.00
Sevier	0.00	0.00	0.56	0.00	0.00	2.71	1.83	2.55
Washington	29.27	42.62	27.73	32.30	17.57	34.64	13.88	48.05
Wayne	0.00	0.00	0.75	1.12	0.00	0.00	0.00	0.00
REGIONAL TOTALS	37.39	53.20	33.77	40.17	23.31	38.26	21.99	57.22
<u>Northeastern Region</u>								
Daggett	0.00	0.32	0.00	0.00	0.00	0.30	0.00	0.00
Duchesne	1.79	4.16	6.41	9.55	7.10	6.63	18.33	9.00
Uintah	7.19	3.84	11.32	2.92	13.85	8.13	18.85	6.11
REGIONAL TOTALS	9.00	8.33	17.73	22.47	20.95	15.06	37.18	15.11
<u>Southeastern Region</u>								
Carbon	0.00	0.32	0.56	1.40	3.38	5.42	4.97	0.68
Emery	3.59	5.44	1.88	0.84	17.57	5.72	7.33	7.98
Grand	0.00	1.60	0.75	0.00	0.68	0.00	0.00	0.00
San Juan	0.00	0.00	0.00	2.25	0.00	0.00	0.00	0.00
REGIONAL TOTALS	3.59	7.37	3.20	4.49	21.62	11.15	12.31	8.66
Unknown counties	0.00	0.00	4.71	0.00	0.00	0.00	0.00	3.57
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed Season

Table 8. Percentage distribution of quail hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	1.94	4.02	1.92	2.41	4.09	3.06	3.08	1.75
Cache	0.32	4.33	1.73*	1.20*	2.40*	1.41*	1.10*	1.75*
Davis	5.85	4.33	9.61	2.17	6.25	1.41	3.30	1.27
Morgan	0.65	0.30	0.19*	0.96*	.24*	0.00*	2.64*	1.11*
Rich	0.00	0.00	0.19*	0.00*	0.00*	0.00*	0.00*	0.00*
Summit	1.63	0.30	0.57*	0.00*	0.72*	0.71*	0.00*	0.00*
Weber	5.20	2.78	3.84	7.95	7.69	3.06	5.51	4.77
REGIONAL TOTALS	15.63	16.08	8.07	14.70	21.39	9.65	15.64	10.65
<u>Central Region</u>								
Juab	0.30	0.30	3.07	0.00	6.49	0.94	0.22	0.32
Salt Lake	4.55	1.85	3.26	1.45	4.57	1.41	1.98	0.64
Sanpete	0.32	4.33	0.96*	1.93*	0.24*	0.94*	0.00*	0.16*
Tooele	1.94	0.61	5.57*	0.96*	1.20	1.65*	1.54*	0.48*
Utah	34.19	30.65	20.76	21.69	16.11	22.12	19.16	16.54
Wasatch	0.00	1.23	4.61*	0.00*	0.24*	0.00*	0.22*	0.00*
REGIONAL TOTALS	41.37	38.99	38.26	26.03	28.85	27.06	23.13	18.13
<u>Southern Region</u>								
Beaver	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.16
Garfield	0.00	0.00	0.57	0.00	0.00	0.00	0.00	0.00
Iron	0.65	0.00	0.38	0.72	0.00	0.00	0.22	1.27
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	3.57	7.73	2.50	5.06	3.85	8.47	3.52	7.15
Piute	0.32	1.23	0.00	0.00	0.24	0.00	0.00	0.00
Sevier	0.65	0.00	0.38	0.00	0.00	1.18	3.30	5.56
Washington	16.60	17.64	12.30	21.93	20.91	34.24	11.23	28.62
Wayne	0.00	0.00	0.38	1.20	0.00	0.00	0.00	0.16
REGIONAL TOTALS	23.44	26.62	16.52	28.92	25.00	41.89	18.28	42.93
<u>Northeastern Region</u>								
Daggett	0.00	0.61	0.00	0.00	0.00	0.24	0.00	0.00
Duchesne	2.92	2.16	7.30	13.25	5.53	4.47	15.20	8.11
Uintah	7.48	7.12	13.26	15.18	10.10	13.41	17.62	9.06
REGIONAL TOTALS	10.42	9.90	20.57	28.44	15.63	18.12	32.82	17.17
<u>Southeastern Region</u>								
Carbon	6.83	0.30	1.53	0.24	2.16	0.94	3.74	0.48
Emery	2.28	4.95	1.73	1.45	6.73	2.12	6.39	8.11
Grand	0.00	3.09	0.96	0.00	0.24	0.00	0.00	0.32
San Juan	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00
REGIONAL TOTALS	9.11	8.34	4.22	1.93	9.13	3.06	10.13	8.90
Unknown counties	0.00	0.00	2.30	0.00	0.00	0.24	0.00	2.23
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed Season

Table 9. Statewide summary of quail harvest statistics, 1951-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Quail Per Hunter-Day	Quail Per Hunter
1951	3,856	6,362	7,069	0.90	1.65
1952	2,694	6,105	5,500	1.11	2.27
1953	2,676	5,753	4,494	1.28	2.15
1954	3,855	7,479	8,696	0.86	1.94
1955	--	--	--	0.17	2.10
1956	--	--	--	--	2.26
1957	--	--	--	--	1.85
1958	--	--	--	--	3.73
1959	8,554	22,854	18,174	1.26	2.67
1960	7,117	21,272	13,971	1.52	2.99
1961	9,980	27,362	25,746	1.06	2.74
1962	6,462	18,710	14,660	1.27	2.89
1963	8,059	28,088	16,383	1.71	3.49
1964	8,951	31,189	20,510	1.52	3.48
1965	6,163	17,532	16,528	1.06	2.45
1966	6,465	22,771	16,720	1.36	3.52
1967	8,455	26,187	23,806	1.10	3.10
1968	9,302	28,469	23,132	1.23	3.06
1969	9,160	26,119	22,529	1.16	2.85
1970	6,141	18,896	16,452	1.15	3.08
1971	8,039	21,082	21,595	0.98	2.62
1972	7,380	16,504	21,779	0.76	2.24
1973	5,654	14,324	17,777	0.81	2.53
1974	6,097	12,005	14,702	0.82	1.97
1975	6,397	16,903	16,805	1.01	2.64
1976	5,215	14,454	13,261	1.09	2.77
1977	4,446	9,496	9,646	0.98	2.14
1978	5,924	15,491	13,649	1.13	2.61
1979	5,632	15,821	13,550	1.17	2.81
1980	4,156	11,690	10,400	1.12	2.81
1981	4,946	13,586	12,843	1.06	2.75
1982	4,368	9,870	10,575	0.93	2.26
1983	4,012	11,248	10,232	1.10	2.81
1984	3,654	8,303	9,805	0.85	2.27
1985	3,065	7,051	7,994	0.88	2.30
1986	2,432	4,574	6,326	0.72	1.88
1987	2,549	7,648	7,918	0.97	3.00
1988	2,671	8,849	8,682	1.02	3.31
1989	3,111	7,384	8,607	0.86	2.37
1990	2,614	6,091	8,561	0.71	2.33
1991	2,644	5,775	7,393	0.78	2.18
1992	2,861	6,788	8,068	0.84	2.37
1993	3,649	11,192	11,952	0.94	3.07
Totals					
(1951-93)	209,406	571,277	526,490	--	--
Averages					
(1951-92)	5,415	14,739	13,540	1.06	2.61

Table 10. Gambel's quail long period waterhole count trend on the west slope of the Beaver Dam Mountains, Washington County, 1976-93. These counts have been conducted since 1962.

Index	Year																	Average	
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1976-92
Total Young	61	--	67	253	72	37	85	114	166	47	163	348	59	35	33	208	415	465	135
Total Adults	53	--	29	77	52	25	33	14	86	11	48	139	47	18	9	35	128	158	50
Total Quail	114	17	86	330	124	62	118	128	252	58	211	487	106	53	42	243	543	623	175
Young per 100 Adults	115	--	353	329	138	148	258	814	193	427	340	250	126	194	367	594	324	294	311

HUNGARIAN PARTRIDGE

SUMMARY

In 1993, limited brood data was collected in Uintah County.

The 1993 hunt data indicated decreased hunting pressure on Huns when compared to 1992. The number of Huns harvested decreased 70 percent in 1993. Hunters afield decreased 35 percent. Total hunters, days afield and harvest remain just below the long-term average.

We expected continued improvement in Hungarian partridge populations in Box Elder County due to the large quantity of agricultural land set aside in the Conservation Reserve Program. We believe that increases in hunter success since 1985 reflect increased partridge populations as a direct result of CRP. Exceptions (declines) in 1988 and 1989 were probably due to drought. In 1993, the dramatic decrease in number of Huns harvested probably resulted because of poor over-winter survival during 1992-93.



Brood Counts

Results of the annual random brood counts for 1993 are shown in Table 1 of this section. Long-term trends of young per adult ratios, mean brood size and Huns observed per 100 hours are shown in Tables 2-4. Results of the survey for 1993 compared to 1992 and the previous 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total Huns observed	17	-83	-81
Young per 100 adults	750	+32	+53
Mean brood size	15.00	+70	+50
Huns observed per 100 hours	40	-66	-84
Total hours effort	42	-51	-11

Young per 100 adults increased 32 percent from the previous year, and was 53 percent above average. Hours of effort decreased 51 percent from 1992, and only 1 brood was observed.

Harvest

Hunter Questionnaire

Results of the annual hunter questionnaire for 1993 are shown in Table 5. Long-term trends of Huns bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 6-8 and total statewide harvest statistics in Table 9. The 1993 season compared to 1992 and the previous 34-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Hungarian partridge hunters	2,090	-35	-41
Hungarian partridge harvest	2,280	-70	-70
Hunter-days afield	6,194	-24	-30
Huns per hunter-day	0.37	-60	-55
Huns per hunter	1.09	-54	-47

Hungarian partridge hunters and hunting pressure decreased in 1993. Success decreased 70 percent from 1992. Harvest was 70 percent below the long-term average.

Long-term Hun harvest statistics are shown in Figures 1 and 2.

Field Bag Checks

No Hungarian partridge field bag check data was collected in 1993 (Table 10). Hunter success trends determined via this method are shown in Table 11.

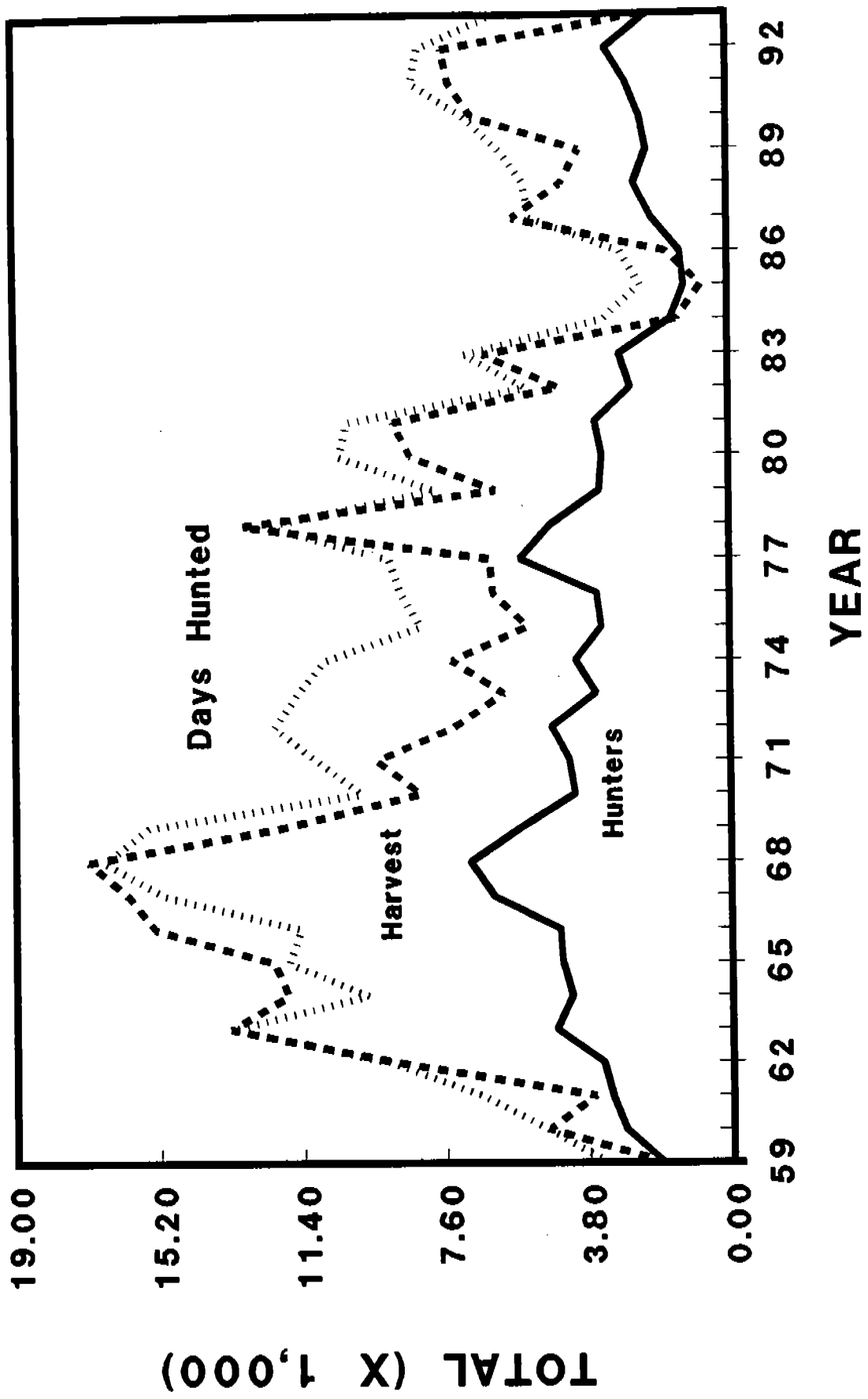


Figure 1. Statewide trends of Hungarian partridge harvest statistics, 1959-93.

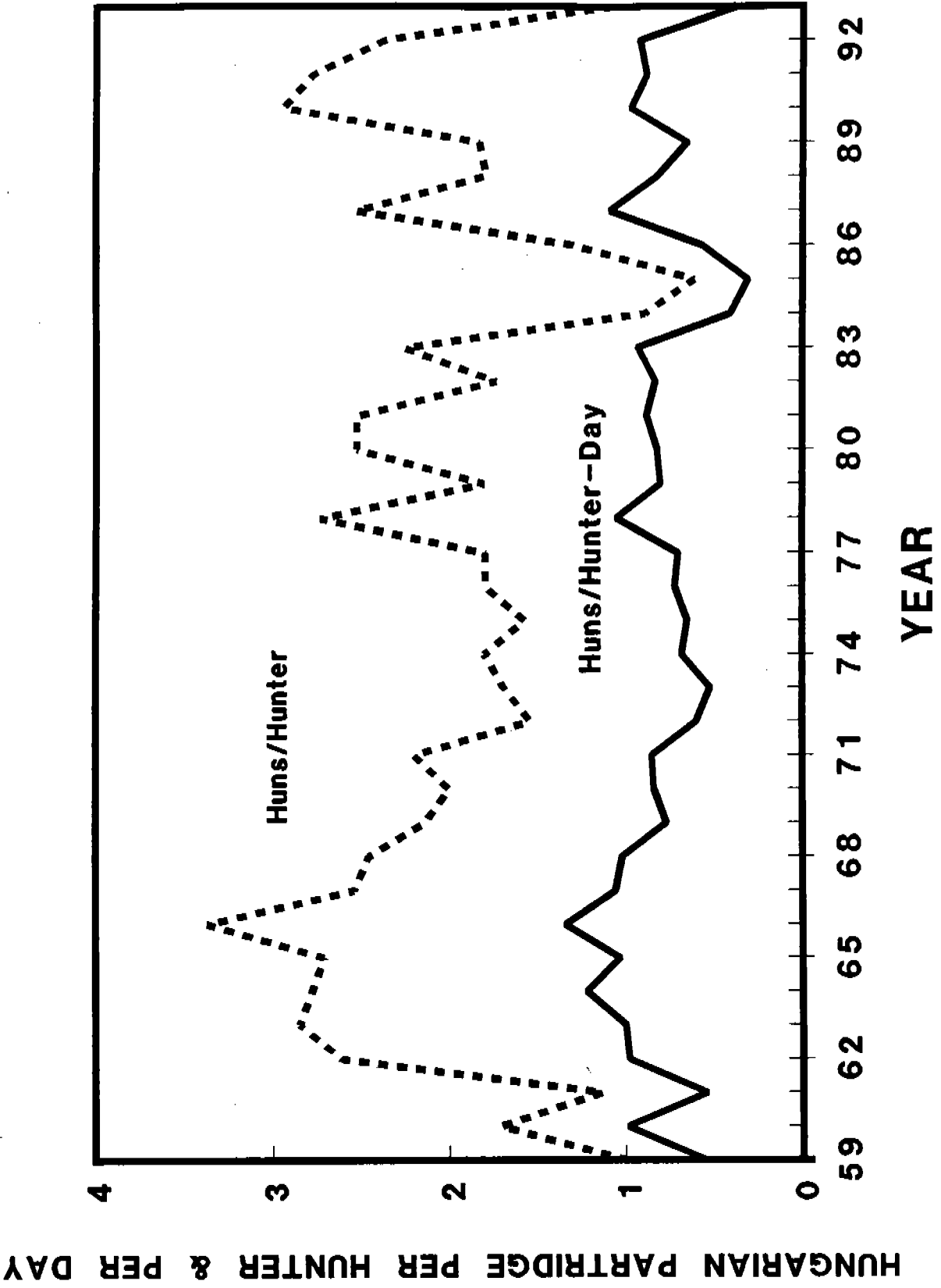


Figure 2. Statewide trends of Hungarian partridge hunter success rates, 1959-93.

Table 1. Hungarian partridge summer inventory, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Young & Adults		Adults w/o Young		Total Young	Young/100 Adults		Hours of Effort		Birds/100 Hr
	#	Adults		Young	Adults	Young	Young		Young	Vehicle Miles	Horse	Walk	
Northern Region													
Box Elder	--	--	--	--	--	--	--	--	--	--	27	12	39
Cache	--	--	--	--	--	--	--	--	--	--	--	3	3
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	27	15	42
Central Region													
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region													
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region													
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	1	2	15	15.00	--	--	2	15	750	--	--	0.20	8,500
REGIONAL TOTALS	1	2	15	15.00	--	--	2	15	750	--	--	0.20	8,500
Southeastern Region													
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	2	15	15.00	--	--	2	15	750	--	--	27	40
STATE TOTALS	1	2	15	15.00	--	--	2	15	750	--	--	15	42

NOT APPLICABLE

NOT APPLICABLE

Table 2. Trend of Hungarian partridge young per 100 adults, 1983-93.

Region and County	Year											Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Northern Region												
Box Elder	400	--	--	450	569	307	--	396	793	711	--	--
Cache	--	--	--	--	--	400	--	433	--	260	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	400	--	--	450	569	324	425	400	793	550	--	489
Central Region												
Jrabb	--	--	--	--	--	--	--	--	--	800	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--
Tonele	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	400	--	400	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	400	--	400	--	--	--	800	--	533
Southern Region												
Beaver												
Garfield												
Iron												
Kane												
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett											--	--
Duchesne											--	--
Uintah											750	--
REGIONAL TOTALS											750	--
Southeastern Region												
Carbon												
Emery												
Grand												
San Juan												
REGIONAL TOTALS	400	--	--	440	569	328	425	400	793	567	750	490
STATE TOTALS												

Table 3. Trend of average brood size for Hungarian partridge, 1983-93.

Region and County	Year											Average		
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	1983-93	
Northern Region														
Box Elder	10.67	--	--	18.00	11.88	8.60	8.50	8.25	12.50	9.00	--	--	--	--
Cache	--	--	--	--	--	--	--	6.00	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	10.67	--	--	18.00	11.88	8.60	8.50	8.90	12.50	9.00	--	--	11.01	--
Central Region														
Juab	--	--	--	--	--	--	--	--	--	8.00	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Touche	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	4.00	--	4.00	--	--	--	--	--	--	--	5.33
REGIONAL TOTALS	--	--	--	4.00	--	4.00	--	--	--	8.00	--	--	5.33	--
Southern Region														
Beaver														
Garfield														
Iron														
Kane														
Millard														
Piute														
Sevier														
Washington														
Wayne														
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region														
Daggett											--	--	--	--
Duchesne											15.00	--	--	--
Uintah											15.00	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	15.00	--	--	--
Southeastern Region														
Carbon														
Emery														
Grand														
San Juan														
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	10.67	--	--	11.00	11.88	7.83	8.50	8.90	12.50	8.83	15.00	15.00	10.01	--

Table 4. Trend of Hungarian partridge observed per 100 hours, 1983-93.

Region and County	Year										Average 1983-92	
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992		1993
Northern Region												
Box Elder	67	--	0	96	561	438	--	529	327	96	--	
Cache	--	--	--	--	--	--	88	538	--	257	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	67	--	0	50	435	240	88	517	327	110	204	
Central Region												
Juab	--	--	--	--	--	--	--	--	--	450	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Snapete	--	--	--	--	--	--	--	--	--	--	--	
Tonele	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	500	--	500	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	500	--	500	--	--	--	450	483	
Southern Region												
Beaver												
Garfield												
Iron												
Kane												
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	--	--	--	--	--	--	
Uintah	--	--	--	--	--	--	--	--	--	8,500	--	
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	8,500	--	
Southeastern Region												
Carbon												
Emery												
Grand												
San Juan												
REGIONAL TOTALS	--	--	0	60	435	248	88	517	327	118	40	
STATE TOTALS	67	--	0	60	435	248	88	517	327	118	221	

Table 5. Summary of Hungarian partridge hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	55	3,173	760	0.24	51.23	33.34
CACHE	28	1,539	855	0.56	24.85	37.51
DAVIS	0	0	0	0.00	0.00	0.00
MORGAN	2	133	76	0.57	2.15	3.33
RICH	9	323	171	0.53	5.22	7.50
SUMMIT	1	57	0	0.00	0.92	0.00
WEBER	5	133	0	0.00	2.15	0.00
REGIONAL TOTALS	100	5,358	1,862	0.35	86.52	81.68
CENTRAL REGION						
JUAB	2	19	0	0.00	0.31	0.00
SALT LAKE**	1	19	0	0.00	0.31	0.00
SANPETE**	3	38	38	1.00	0.61	1.67
TOOELE	2	114	57	0.50	1.84	2.50
UTAH**	4	570	76	0.13	9.20	3.33
WASATCH**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	12	760	171	0.23	12.27	7.50
SOUTHERN REGION						
BEAVER**	0	0	0	0.00	0.00	0.00
GARFIELD**	1	0	19	0.00	0.00	0.83
IRON**	0	0	0	0.00	0.00	0.00
KANE**	0	0	0	0.00	0.00	0.00
MILLARD**	1	38	0	0.00	0.61	0.00
PIUTE**	0	0	0	0.00	0.00	0.00
SEVIER**	0	0	0	0.00	0.00	0.00
WASHINGTON**	0	0	0	0.00	0.00	0.00
WAYNE**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	2	38	19	0.50	0.61	0.83
NORTHEASTERN REGION						
DAGGETT**	0	0	0	0.00	0.00	0.00
DUCHESNE**	0	0	0	0.00	0.00	0.00
UINTAH**	1	0	0	0.00	0.00	0.00
REGIONAL TOTALS	1	0	0	0.00	0.00	0.00
SOUTHEASTERN REGION						
CARBON**	0	0	0	0.00	0.00	0.00
EMERY**	2	0	38	0.00	0.00	1.67
GRAND**	1	19	0	0.00	0.31	0.00
SAN JUAN**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	3	19	38	2.00	0.31	1.67
UNKNOWN	2	19	190	10.00	0.31	8.33
STATE TOTALS	120	6,194	2,280	0.37	100.00	100.00

* Total hunter-trips from questionnaire returns.

** Closed to Hungarian partridge hunting in 1993.

Table 6. Summary of Hungarian partridge bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.60	1.28	0.95	0.62	1.11	1.02	1.00	0.24
Cache	0.00	1.05	0.50	0.94	0.86	0.86	1.07	0.56
Davis	0.00	0.00	0.00	2.67	0.00	0.00	0.00	0.00
Morgan	0.00	0.67	0.00	1.33	0.00	0.00	0.04	0.57
Rich	0.00	1.50	0.00	0.00	2.13	1.35	0.76	0.53
Summit	0.00	2.00	3.00	0.00	0.00	0.00	0.00	0.00
Weber	0.00	1.25	1.17	1.00	1.00	0.40	0.00	0.00
REGIONAL TOTALS	0.59	1.23	0.89	0.67	1.02	0.97	0.95	0.35
<u>Central Region</u>								
Juab	0.00	0.30	0.00*	0.00*	0.00*	0.00*	2.00	0.00
Salt Lake	0.00	0.00	0.09*	0.67*	0.00*	0.00*	1.00*	0.00*
Sanpete	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	1.00*
Tooele	0.00	0.00	0.33	0.47	0.46	0.02	0.25	0.50
Utah	0.00	0.33	0.31*	0.00*	0.00*	0.00*	0.67*	0.13*
Wasatch	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.20	0.24	0.41	0.40	0.02	0.40	0.23
<u>Southern Region</u>								
Beaver	0.00	0.00	0.00	0.00*	0.00*	0.00*	2.00*	0.00*
Garfield	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
Iron	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
Kane	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
Millard	2.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Piute	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
Sevier	0.20	2.00	0.00*	0.00*	3.00*	0.00*	1.67*	0.00*
Washington	0.00	0.00	2.14*	0.00*	0.00*	0.00*	0.00*	0.00*
Wasatch	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.78	1.33	2.14	0.00	0.60	0.00	1.40	0.50
<u>Northeastern Region</u>								
Daggett	0.00	0.00	0.00*	0.00*	0.00*	1.25*	0.00*	0.00*
Duchesne	0.00	0.00	0.00	0.00*	0.00*	1.00*	0.00*	0.00*
Uintah	0.00	0.00	0.00	1.00*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.50	0.00	0.00	0.00	0.00	1.20	0.00	0.00
<u>Southeastern Region</u>								
Carbon	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
Emery	0.00	0.00	1.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Grand	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*
San Juan	0.00	0.00	0.00*	1.50*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.00	1.00	1.50	0.00	0.00	0.00	2.00
Unknown Counties	0.00	0.30	0.00	0.00	0.00	0.00	0.00	10.00
STATE TOTALS	0.57	1.09	0.82	0.65	0.97	0.88	0.92	0.37

*Closed Season

Table 7. Percentage distribution of Hungarian partridge harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	91.14	80.25	78.86	76.20	60.80	73.82	61.41	33.34
Cache	0.00	9.87	6.03	8.47	31.01	16.75	30.59	37.51
Davis	0.00	0.00	0.00	4.23	0.00	0.00	0.00	0.00
Morgan	0.00	0.85	0.00	2.12	0.00	0.00	0.24	3.33
Rich	0.00	1.28	0.00	0.00	5.17	6.37	3.76	7.50
Summit	0.00	0.85	2.26	0.00	0.00	0.00	0.00	0.00
Weber	0.00	2.14	2.64	2.12	0.30	1.42	0.00	0.00
REGIONAL TOTALS	91.14	95.27	89.81	93.13	97.28	98.35	96.00	81.68
<u>Central Region</u>								
Juab	0.00	1.28	0.00*	0.00*	0.00*	0.00*	0.47	0.00
Salt Lake	0.00	0.00	0.37*	1.06*	0.00*	0.00*	0.24*	0.00
Sanpete	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	1.67
Tooele	0.00	0.00	1.88	3.70	1.82	0.24	1.18	2.50
Utah	0.00	0.42	1.88*	0.00*	0.00*	0.00*	0.47*	3.33
Wasatch	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00
REGIONAL TOTALS	0.00	1.71	4.15	4.76	1.82	0.24	2.35	7.50
<u>Southern Region</u>								
Beaver	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.47*	0.00
Garfield	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.83
Iron	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00
Kane	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00
Millard	7.59	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00
Piute	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00
Sevier	1.27	1.71	0.00*	0.00*	0.91*	0.00*	1.18*	0.00
Washington	0.00	0.00	5.66*	0.00*	0.00*	0.00*	0.00*	0.00
Wayne	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00	0.00
REGIONAL TOTALS	8.86	1.71	5.66	0.00*	0.91	0.00*	1.65*	0.83
<u>Northeastern Region</u>								
Daggett	0.00	0.00	0.00*	0.00*	0.00*	1.18*	0.00*	0.00
Duchesne	0.00	0.00	0.00*	0.00*	0.00*	0.24*	0.00*	0.00
Uintah	0.00	0.00	0.00	0.53*	0.00*	0.00*	0.00*	0.00
REGIONAL TOTALS	0.00	0.00	0.00	0.53	0.00	0.00*	0.00*	0.00
<u>Southeastern Region</u>								
Carbon	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00
Emery	0.00	0.00	0.37	0.00*	0.00*	0.00*	0.00*	1.67
Grand	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00
San Juan	0.00	0.00	0.00	1.59*	0.00*	0.00*	0.00*	0.00
REGIONAL TOTALS	0.00	0.00	0.37	1.59	0.00	0.00*	0.00	1.67
Unknown counties	0.00	1.28	0.00	0.00	0.00	0.00	0.00	8.33
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed Season

Table 8. Percentage distribution of Hungarian partridge hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	87.68	68.22	68.42	80.42	53.10	64.04	56.41	51.23
Cache	0.72	10.28	9.90	5.84	34.81	17.26	26.25	24.85
Davis	0.00	1.40	1.23	1.03	0.00	0.42	0.87	0.00
Morgan	0.00	1.40	0.30	1.03	2.36	0.42	5.21	2.15
Rich	0.72	0.93	0.00	0.69	2.36	4.16	4.56	5.22
Summit	0.00	0.46	0.61	0.00	0.00	0.00	0.00	0.92
Weber	0.00	1.86	1.85	1.37	0.30	3.12	0.00	2.15
REGIONAL TOTALS	89.13	84.57	82.36	90.39	92.93	89.40	93.29	86.52
<u>Central Region</u>								
Juab	0.72	4.67	0.00*	0.00*	0.59*	0.00*	0.22	0.31
Salt Lake	0.00	0.00	3.40*	1.03*	0.00*	0.00*	0.22*	0.31*
Sanpete	0.72	0.46	0.00*	0.00*	0.00*	0.00*	0.00*	0.61*
Tooele	0.72	2.80	4.64	5.16	3.84	9.15*	4.34	1.84
Utah	1.44	1.40	4.95*	0.34*	0.00*	0.21*	0.65*	9.20*
Wasatch	0.00	0.00	1.23*	1.03*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	3.62	9.34	14.24	7.56	4.43	9.36	5.42	12.27
<u>Southern Region</u>								
Beaver	0.72	0.00	0.00*	0.00*	1.18*	0.21*	0.22*	0.00*
Garfield	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Iron	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.22*	0.00*
Kane	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Millard	2.17	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.61*
Piute	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
Sevier	3.62	0.93	0.00*	0.69*	0.30*	0.00*	0.65*	0.00*
Washington	0.00	0.46	2.16*	0.00*	0.00*	0.00*	0.00*	0.00*
Wayne	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	6.52	1.39	2.15	0.69	1.48	0.21	1.08	0.61
<u>Northeastern Region</u>								
Daggett	0.00	0.00	0.00*	0.00*	0.00*	0.83*	0.00*	0.00*
Duchesne	0.00	0.00	0.30*	0.00*	0.00*	0.21*	0.00*	0.00*
Uintah	0.72	0.00	0.00*	0.34*	0.00*	0.00*	0.22*	0.00*
REGIONAL TOTALS	0.72	0.00	0.29	0.34	0.00*	1.04	0.22	0.00
<u>Southeastern Region</u>								
Carbon	0.00	0.00	0.61*	0.34*	0.00*	0.00*	0.00*	0.00*
Emery	0.00	0.00	0.30*	0.00*	1.18*	0.00*	0.00*	0.00*
Grand	0.00	0.00	0.00*	0.00*	0.00*	0.00*	0.00*	0.31*
San Juan	0.00	0.00	0.00*	0.69*	0.00	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.00	0.92	1.03	1.18	0.00	0.00	0.31
Unknown counties	0.00	4.67	0.00	0.00	0.00	0.00	0.00	0.31
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

*Closed Season

Table 9. Statewide summary of Hungarian partridge harvest statistics, 1955-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Huns Per Hunter-Day	Huns Per Hunter
1955	--	--	--	--	0.39
1956	--	--	--	--	0.89
1957	--	--	--	--	0.45
1958	--	--	--	--	1.34
1959	1,846	1,820	3,354	0.54	0.99
1960	2,847	4,877	4,929	0.99	1.71
1961	3,205	3,648	6,645	0.54	1.13
1962	3,440	8,970	9,153	0.98	2.61
1963	4,676	13,343	13,291	1.00	2.85
1964	4,249	11,812	9,688	1.22	2.78
1965	4,498	12,183	11,798	1.03	2.71
1966	4,549	15,348	11,473	1.34	3.37
1967	6,321	16,049	15,105	1.06	2.54
1968	6,935	17,089	16,674	1.02	2.46
1969	5,591	11,966	15,515	0.77	2.14
1970	4,128	8,236	9,818	0.84	2.00
1971	4,276	9,407	11,011	0.85	2.20
1972	4,754	7,335	12,135	0.60	1.54
1973	3,566	6,014	11,516	0.52	1.69
1974	4,103	7,389	10,789	0.68	1.80
1975	3,409	5,358	8,216	0.65	1.57
1976	3,517	6,287	8,753	0.72	1.79
1977	5,557	6,360	9,058	0.70	1.79
1978	4,743	12,969	12,328	1.05	2.73
1979	3,435	6,200	7,787	0.80	1.80
1980	3,359	8,466	10,366	0.82	2.52
1981	3,545	8,916	10,147	0.88	2.52
1982	2,590	4,475	5,379	0.83	1.73
1983	2,889	6,506	6,998	0.93	2.25
1984	1,523	1,360	3,309	0.41	0.89
1985	1,157	707	2,314	0.31	0.61
1986	1,257	1,627	2,843	0.57	1.30
1987	2,010	5,711	5,246	1.09	2.53
1988	2,471	4,424	5,392	0.82	1.79
1989	2,136	3,920	6,035	0.65	1.83
1990	2,305	6,770	6,976	0.97	2.94
1991	2,662	7,376	8,367	0.88	2.77
1992	3,198	7,553	8,192	0.92	2.36
1993	2,090	2,280	6,194	0.37	1.09
Totals (1959-93)	122,837	262,751	306,794	--	--
Averages (1959-92)	3,551	7,661	8,841	0.82	2.07

Table 10. Hungarian partridge field bag check summary, 1993.

Region and County	All Hunts				Complete Hunts					
	Total Parties	Total Hunters	Total Hours	Total Birds	Complete Hunts	Total Hunters	Total Hours	Total Birds	Birds/Hunter	Birds/100 Hr
Northern Region										
Box Elder	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Central Region	--	--	--	--	--	--	--	--	--	--
Juab	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--
Snapete	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southern Region										
Beaver	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
Millard	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Northeastern Region										
Daggett	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
Duchesne	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
Uintab	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southeastern Region										
Carbon	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
Emery	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
Grand	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
San Juan	--	--	--	--	--	--	--	--	--	NOT APPLICABLE
REGIONAL TOTALS										
STATE TOTALS										

Table 11. Hungarian partridge hunter success trend as determined by field bag check, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	1.04	24	181	9.50	--	--	55	0.55	1.50	50	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	0.55	86	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1.04	24	181	9.50	--	--	55	0.55	0.69	69	--	--
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region												
Beaver												
Garfield												
Iron												
Kane												
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne												
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery												
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	1.04	24	181	9.50	--	--	55	0.55	0.69	69	--	--

WILD TURKEY

Merriam's Turkeys

SUMMARY

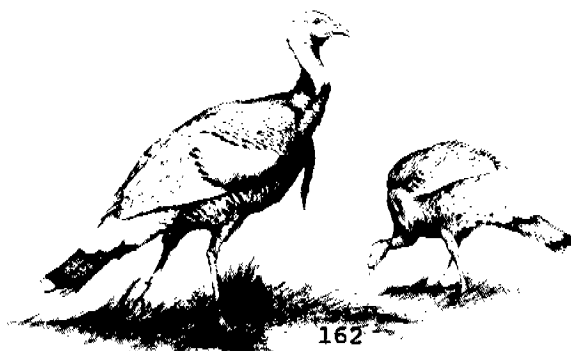
Turkey populations remain stable and above the 24-year average. The percent of hunters observing turkeys increased 20 percent in 1993 and remains 30 percent above average.

Hunter success and turkey observation data for the 1993 spring season indicated that the Boulder and East Zion areas had a better year than 1992. Total harvest and percent success increased 40 and 45 percent respectively. The remaining units of the state, including the LaSal Mountains were closed to hunting. A fall turkey hunting season was not held anywhere in 1993.

Spring hunting pressure was down 4 percent in 1993, but was well above average. Despite one of the worst winters in almost a decade, hunter success rates increased by 45 percent. Four percent fewer hunters were afield. A total of 74 turkeys were harvested in the spring hunt of 1993 compared to 53 taken in 1992, 59 in 1991 and 52 in 1990.

Rio Grande Turkeys

In 1993, Utah sportsmen were again given a limited entry opportunity to harvest Rio Grande turkeys. Four units were designated as limited entry for Rio Grande turkeys: 1) Beaver, 2) New Harmony, 3) Pine Valley and 4) Weber. Five permits were available for each unit, except Beaver where 20 permits were available and New Harmony where 10 permits were issued. A \$25.00 permit was fee required to participate in the limited entry hunt. Hunters were allowed to harvest 1 male bird. Six hundred thirty-one sportsmen applied for the 40 available permits. A random drawing was held to determine successful applicants. Odds for drawing in each area were as follows: 1) Beaver 1:11, 2) New Harmony 1:12, 3) Pine Valley 1:9 and 4) Weber 1:50.



A Rio Grande wild turkey-bid permit was available again. Minimum bid on the permit was \$350 January 15th through 8:00 p.m. March 6th, 1993. Two bids were submitted by the 8:00 p.m. deadline on March 6th. Because of wording errors in the 1992-93 Upland Game Proclamation, both bids were accepted and 2 permits issued. One bid was for \$405.00 and the other for \$425.00. The successful bidders had their choice of the limited entry units to hunt and chose to hunt the New Harmony Unit.

Limited brood count data is exhibited in Table 5. Harvest statistics for the limited entry hunts are found in Table 6. Forty-two hunters averaged 4.88 days-afield each to harvest a total of 26 turkeys. Five of the harvested birds were yearlings and 21 were adults. Sixty-three percent of the hunters afield harvested a bird.

As other Rio Grande populations continue to grow throughout the state, more limited entry opportunities will be provided.

Harvest

Spring Merriam's Gobbler Season

Results of the 1993 spring season are shown in Table 1 of this section. The trend of these data since 1968 is shown in Table 2 and Figures 1 and 2. Specific harvest information is listed in Table 3. Statewide summary of fall hunt statistics is in Table 4. The 1993 spring season compared to 1992 and the previous 24-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Permits sold	500	-7	+95
Hunters afield	466	-4	+101
Turkeys harvested	74	+40	+169
Hunter-days afield	1,508	-6	+120
Percent hunter success	16	+45	+42
Turkeys bagged per hunter-day	0.05	+67	+18
Percent of hunters who observed turkeys	54	+20	+30

Permit sales and hunters afield decreased slightly from 1992 but were well above average. Total harvest increased (from 53 in 1992 to 74 in 1993), which is forty percent above the previous year. Hunter success rates increased 45 percent from 1992 and were 4 percent below the 24-year average. The proportion of hunters who reported having observed turkeys was 30 percent above average. In 1993, the Boulder Unit accounted for 59% of the hunting pressure based on hunter-days afield. The East Zion unit accounted for 41% of the hunting pressure. However, the East Zion Unit accounted for 63% of the statewide harvest.

The trend of spring Merriam's turkey harvest statistics is shown in Figures 1 and 2. Five percent of the hunters used archery equipment, one hunter used a rifle and the remainder reported using shotguns. Five turkeys were reported crippled and not recovered. One of 54 known kills was suspected of being female and another 17 are suspected of being jakes.

Thirty-one percent of the harvest (9) occurred on opening day (Friday), 14 percent the following day, 45 percent the first weekend and 7 percent the last weekend of the hunt. Sixty-six percent of the harvest occurred on weekends compared with 48 percent last year (1992), 14 percent in 1991 and 22 percent in 1990.

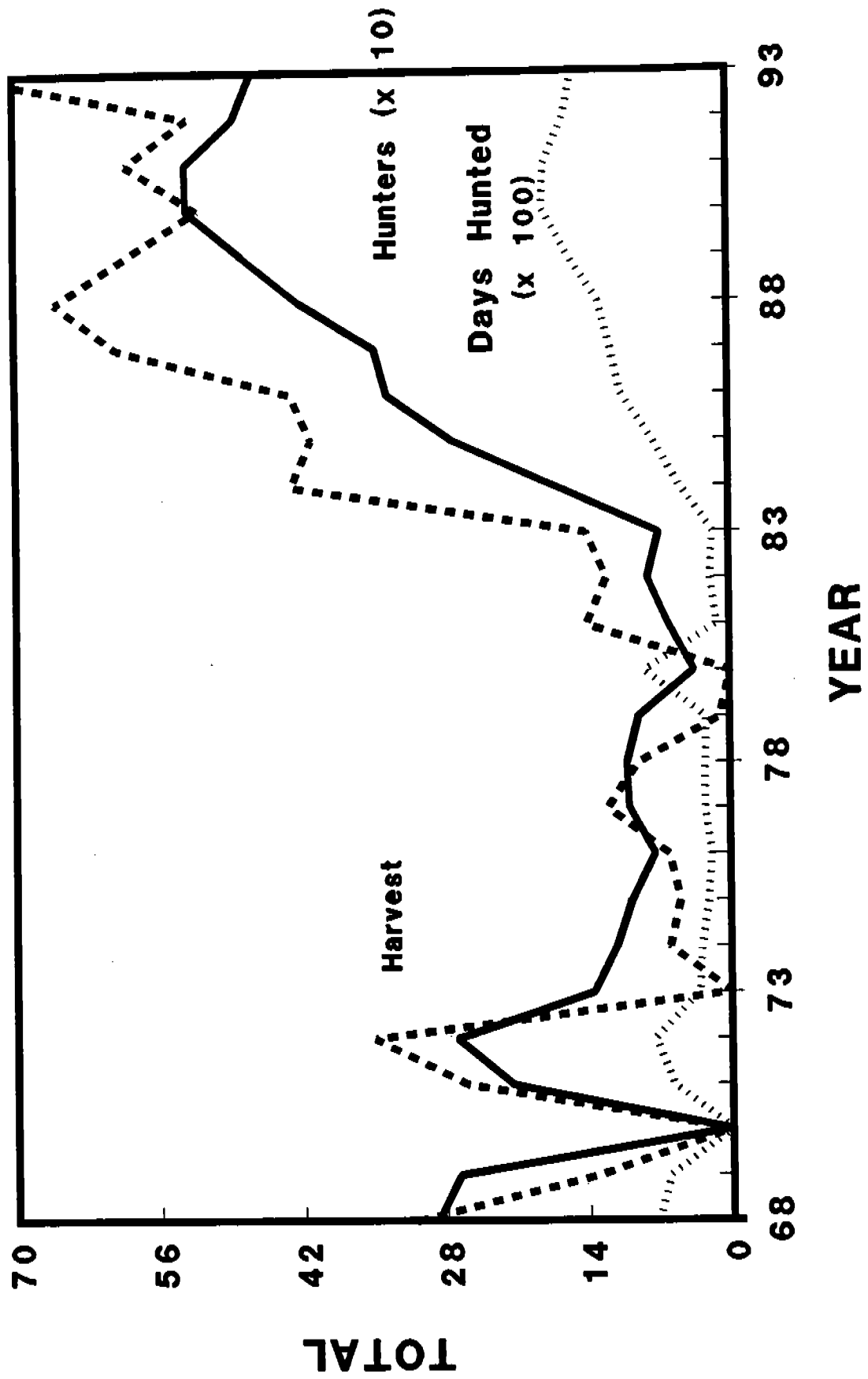


Figure 1. Spring Merriam's wild turkey hunters, harvest, and days hunted, 1968-93.

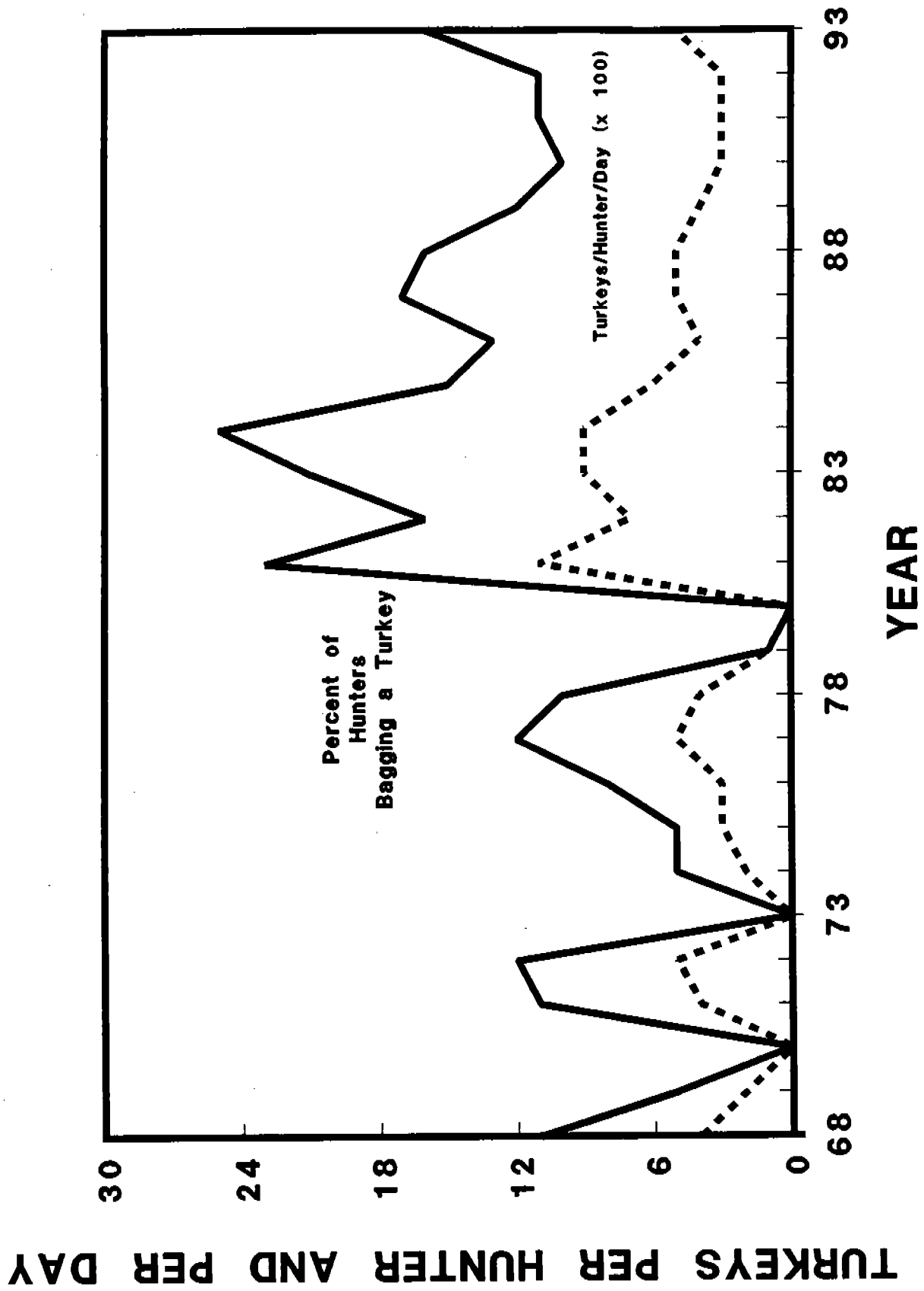


Figure 2. Spring Merriam's wild turkey hunting success, 1968-93.

Table 1. Summary of the 1993 spring Merriam's turkey season.

Data	Elk Ridge		East Zion		Boulder		LaSal		Beaver		Pine Valley		Mixed Units		STATE TOTALS	
	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't ^a	Calc ^a	Rep't	Calc
Permits Sold															500	
No Hunts															23	
Hunters Afield	C		139	190	201	275	C		C			C	26	36	340	466
Hunter-Days	L		417	571	684	937	L		L			L	72	99	1,101	1,508
Turkeys Bagged	O		34	47	20	27	O		O			O	0	0	54	74
Percent Success	S		24	--	10	--	S		S			S	0	--	16	--
Turkeys Bagged Per Hunter-Day	E		0.08	--	0.03	--	E		E			E	0.00	--	0.05	--
Reported Crippling Loss (Loss/100 Bagged)	D		2	--	3	--	D		D			D	1	--	5	--
Turkeys Observed	S		6	--	15	--	S		S			S	--	--	9	--
Gobblers	E		477	--	592	--	E		E			E	88	--	1,069	--
Hens	A		101	--	203	--	A		A			A	18	--	304	--
Unidentified	S		345	--	257	--	S		S			S	55	--	602	--
Number of Hunters Who Saw Turkeys	O		65	--	90	--	O		O			O	15	--	155	--
Percent of Hunters Who Saw Turkeys	N		73	--	109	--	N		N			N	17	--	182	--
Projection Factor = 500 Permits Sold/365 Questionnaires Returned = 1.369863.			53	--	54	--							65	--	54	--

* Hunters Hunted More than One Area; Data Included In Specific Area Hunted.

^a Figures Do Not Sum Because These Hunters Hunted Another Unit As Their Primary Hunting Area And Were Not Counted Twice. Hunters Afield and Days By Unit Were As Follows: Boulder (26-72), All of These Were From East Zion as Their Primary Unit.

Table 2. Summary of Merrriam's turkey harvest statistics for spring gobbler seasons, 1967-93.

Hunting Unit	Year	Hunters		Total		Hunter-Days		Percent		Turkeys Per		Percent of Hunters		Total Permits**
		Afield	Harvest	Afield	Harvest	Afield	Harvest	Success*	Hunter-Day	Observing Turkeys	Hunter-Day	Observing Turkeys		
EAST ZION	1967	24	9	59	38	0.15	38	0.15	58	0.15	38	58	58	
	1968	130	16	364	11	0.04	11	0.04	48	0.04	11	48	48	
	1969	77	4	210	6	0.02	6	0.02	35	0.02	6	35	35	
	1970				NO SEASON									
	1971	106	14	272	12	0.05	12	0.05	38	0.05	12	38	38	
	1972	113	20	321	14	0.06	14	0.06	47	0.06	14	47	47	
	1973	43	0	96	0	0.00	0	0.00	14	0.00	0	14	14	
	1974	34	2	73	7	0.03	7	0.03	23	0.03	7	23	23	
	1975	29	3	42	8	0.06	8	0.06	33	0.06	8	33	33	
	1976	31	5	74	16	0.05	16	0.05	38	0.05	16	38	38	
	1977	47	6	117	13	0.05	13	0.05	48	0.05	13	48	48	
	1978	36	4	80	13	0.06	13	0.06	56	0.06	13	56	56	
	1979	35	1	95	4	0.01	4	0.01	11	0.01	4	11	11	
	1980	35	0	84	0	0.00	0	0.00	17	0.00	0	17	17	
	1981	39	13	94	32	0.14	32	0.14	68	0.14	32	68	68	
	1982	62	11	134	18	0.08	18	0.08	70	0.08	18	70	70	
	1983	48	12	122	25	0.10	25	0.10	68	0.10	25	68	68	
	1984	108	30	313	27	0.09	27	0.09	70	0.09	27	70	70	
	1985	129	24	368	19	0.07	19	0.07	60	0.07	19	60	60	
	1986	173	31	508	18	0.06	18	0.06	68	0.06	18	68	68	
1987	153	40	500	26	0.08	26	0.08	74	0.08	26	74	74		
1988	221	44	680	20	0.06	20	0.06	45	0.06	20	45	45		
1989	235	35	799	15	0.04	15	0.04	66	0.04	15	66	66		
1990	250	29	850	12	0.03	12	0.03	60	0.03	12	60	60		
1991	204	38	682	19	0.06	19	0.06	54	0.06	19	54	54		
1992	214	34	681	16	0.05	16	0.05	55	0.05	16	55	55		
1993	190	47	571	24	0.08	24	0.08	53	0.08	24	53	53		

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvest	Hunter-Days		Percent Success*	Turkeys Per Hunter-Day		Percent of Hunters Observing Turkeys	Total Permits**
		Afield			Afield						
BOULDER	1967	17	2	43	12	0.05	75				
	1968	134	15	330	10	0.05	33				
MOUNTAINS	1969	141	6	300	4	0.02	16				
	1970				NO SEASON						
	1971	27	1	64	4	0.02	13				
	1972	42	3	107	8	0.03	28				
	1973	22	0	52	0	0.00	6				
	1974	23	0	56	0	0.00	25				
	1975	16	1	34	7	0.04	8				
	1976	12	0	25	0	0.00	10				
	1977	6	0	13	0	0.00	40				
	1978	16	1	31	0	0.00	14				
	1979	5	0	10	0	0.00	0				
	1980				NO SEASON						
	1981				NO SEASON						
	1982				NO SEASON						
	1983	6	1	7	20	0.17	40				
	1984	33	9	85	27	0.11	73				
	1985	73	7	187	10	0.04	46				
	1986	123	8	354	7	0.02	44				
	1987	105	11	363	7	0.03	40				
	1988	134	11	383	8	0.03	50				
	1989	138	13	417	10	0.03	60				
	1990	185	11	585	6	0.02	42				
	1991	231	18	799	8	0.03	49				
	1992	203	13	682	7	0.02	34				
	1993	275	27	937	10	0.03	54				

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvest	Hunter-Days		Percent Success*	Turkeys Per Hunter-Day		Percent of Hunters Observing Turkeys	Total Permits**
		Afield			Afield			Hunter-Day			
LASAL MOUNTAINS	1967	6	0	0	16	0	0.00	0.00	33		
	1968	17	0	0	44	0	0.00	0.00	62		
	1969	39	3	3	102	9	0.03	0.03	24		
	1970					NO SEASON					
	1971	17	1	1	34	6	0.03	0.03	20		
	1972	50	3	3	129	7	0.03	0.03	29		
	1973	23	0	0	53	0	0.00	0.00	16		
	1974	20	0	0	66	0	0.00	0.00	11		
	1975	11	0	0	30	0	0.00	0.00	33		
	1976	8	0	0	25	0	0.00	0.00	14		
	1977	24	4	4	53	15	0.07	0.07	45		
	1978	32	2	2	78	7	0.03	0.03	38		
	1979	34	0	0	74	0	0.00	0.00	7		
1980					NO SEASON						
1981	18	1	1	31	6	0.03	0.03	24			
1982	18	1	1	50	6	0.02	0.02	35			
1983	12	1	1	27	10	0.10	0.10	30			
1984	24	4	4	70	19	0.06	0.06	88			
1985	72	10	10	194	14	0.05	0.05	42			
1986	51	4	4	192	7	0.02	0.02	45			
1987	74	6	6	218	9	0.03	0.03	50			
1988	65	11	11	199	16	0.06	0.06	70			
1989	104	11	11	352	8	0.03	0.03	41			
1990	95	12	12	340	13	0.03	0.03	48			
1991	97	2	2	311	3	0.01	0.01	35			
1992	66	6	6	236	8	0.02	0.02	50			
1993					NO SEASON						

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvest	Hunter-Days		Percent Success*	Turkeys Per		Percent of Hunters Observing Turkeys	Total Permits**
		Afield			Afield			Hunter-Day			
BEAVER MOUNTAINS	1971	27	2	54	8	0.04	39				
	1972	17	2	53	13	0.04	20				
	1973	17	0	34	0	0.00	7				
	1974	1	0	1	0	0.00	0				
	1975	5	0	7	0	0.00	0				
	1976	2	0	8	0	0.00	0				
	1977	4	0	14	0	0.00	0				
	1978	2	0	7	0	0.00	50				
	1979					NO SEASON					
	1980					NO SEASON					
	1981					NO SEASON					
	1982					NO SEASON					
	1983					NO SEASON					
1984					NO SEASON						
1985					NO SEASON						
1986					NO SEASON						
1987					NO SEASON						
1988					NO SEASON						
1989					NO SEASON						
1990					NO SEASON						
1991					NO SEASON						
1992					NO SEASON						
1993					NO SEASON						

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total		Hunter-Days		Percent Success*	Turkeys Per		Percent of Hunters Observing Turkeys	Total Permits**
		Afield	Harvest	Afield	Harvest	Afield	Harvest		Hunter-Day	Hunter-Day		
PINE VALLEY	1971	23	4	92	15	0.04	70					
	1972	22	1	52	5	0.02	42					
MOUNTAINS	1973	17	0	38	0	0.00	7					
	1974	8	1	23	14	0.05	43					
	1975	6	0	12	0	0.00	0					
	1976		0	13	0	0.00	40					
	1977	2	0	7	0	0.00	0					
	1978	0	0	0	0	0.00	0					
	1979	3	0	15	0	0.00	0					
	1980	0	0	0	0	0.00	0					
	1981	2	0	2	0	0.00	0					
	1982	3	0	5	0	0.00	0					
	1983	0	0	0	0	0.00	0					
1984***								NO SEASON				
1985***								NO SEASON				
1986***								NO SEASON				
1987	8	2	68	13	0.02	50						
1988***								NO SEASON				
1989***								NO SEASON				
1990***								NO SEASON				
1991***								NO SEASON				
1992***								NO SEASON				
1993***								NO SEASON				

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvest	Hunter-Days		Percent Success*	Turkeys Per Hunter-Day		Percent of Hunters Observing Turkeys	Total Permits**
		Afield			Afield						
BLUE MOUNTAINS	1974	17		2	34	13	0.07	27			
ELK RIDGE	1975	19		1	62	6	0.02	56			
	1976	11		0	23	0	0.00	33			
	1977	7		1	14	17	0.08	17			
	1978	12		2	39	18	0.06	36			
	1979	8		0	17	0	0.00	0			
	1980					NO SEASON					
	1981					NO SEASON					
	1982					NO SEASON					
	1983					NO SEASON					
	1984					NO SEASON					
	1985					NO SEASON					
	1986					NO SEASON					
	1987					NO SEASON					
	1988					NO SEASON					
	1989					NO SEASON					
	1990					NO SEASON					
	1991					NO SEASON					
	1992					NO SEASON					
	1993					NO SEASON					

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvest	Hunter-Days		Percent Success*	Turkeys Per Hunter-Day		Percent of Hunters Observing Turkeys		Total Permits**
		Afield			Afield			Hunter-Day	Hunter-Day	Observing Turkeys	Observing Turkeys	
MIXED UNITS	1971	15	4				15			61		
	1972	25	5	89			18	0.05		50		
	1973	12	0	38			0	0.00		0		
	1974	9	0	36			0	0.00		12		
	1975	11	0	32			0	0.00		22		
	1976	4	1	17			25	0.07		100		
	1977	9	1	29			13	0.04		50		
	1978	3	0	11			0	0.00		67		
	1979	6	0	27			0	0.00		20		
	1980	0	0	0			0	0.00		0		
	1981	1	0	2			0	0.00		100		
	1982	0	0	0			0	0.00		0		
	1983	0	0	0			0	0.00		0		
	1984	4	0	15			0	0.00		33		
	1985	4	0	6			0	0.00		67		
	1986	12	0	36			0	0.00		60		
	1987	11	0	28			0	0.00		0		
	1988	12	0	31			0	0.00		75		
	1989	6	1	12			23	0.13		50		
	1990	15	0	36			0	0.00		54		
	1991	16	4	57			23	0.06		69		
	1992	13	2	35			17	0.06		50		
	1993	26	0	99			0	0.00		65		

Table 2. (Continued)

Hunting Unit	Year	Hunters		Total Harvested	Hunter-Days		Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
		Afield			Afield					
STATE TOTALS	1968	290		31	738		11	0.04	41	310
	1969	267		13	612		5	0.02	22	276
	1970						NO SEASON			
	1971	215		26	576		11	0.04	38	223
	1972	269		35	751		12	0.05	39	285
	1973	135		0	311		0	0.00	10	150
	1974	112		6	289		5	0.02	22	121
	1975	97		5	219		5	0.03	29	103
	1976	74		6	185		8	0.03	32	81
	1977	99		12	248		12	0.05	39	108
	1978	101		9	246		10	0.04	42	116
	1979	90		1	237		1	0.01	8	113
	1980	35		0	84		0	0.00	17	40
	1981	60		14	129		23	0.11	53	83
	1982	80		12	184		16	0.07	62	91
	1983	69		14	161		21	0.09	55	92
	1984	169		43	482		25	0.09	72	190
	1985	270		41	747		15	0.06	52	314
	1986	335		43	1,054		13	0.04	57	362
	1987	347		60	1,150		17	0.05	57	384
	1988	421		66	1,267		16	0.05	50	490
	1989	477		59	1,568		12	0.04	55	527
	1990	531		52	1,812		10	0.03	51	579
	1991	532		59	1,792		11	0.03	49	587
	1992	484		53	1,599		11	0.03	45	538
	1993	466		74	1,508		16	0.05	54	500
STATE TOTALS (1968-93)		6,025		734	17,949		--	--	1,051	6,663
STATE AVERAGES (1968-93)		232		28	685		11	0.04	42	257

*Based on the number of hunters bagging one or more turkeys.

**Total permits are sold on a statewide basis and not by unit.

***The Pine Valley Mountains unit was closed by emergency action in 1984 and by amendment to the proclamation in 1985 to protect Rio Grande turkeys released on the area in February 1984. It was opened in 1987 and closed in 1988 through 1992 by proclamation.

Table 3. Date of kill, beard and spur length of Merriam's turkeys harvested during spring 1993.

Hunting Unit	Date of Kill	Beard Length (Inches)	Spur Length (1/8 Inches)
EAST ZION	*--	9	4
	*--	4	1
	*--	--	--
	--	4	2
	5/01	3	1
	5/01	3	3
	5/01	7	5
	5/01	8	4
	5/01	4	2
	5/01	3	2
	5/02	5	2
	*5/02	1	--
	5/03	4	0
	5/03	4	3
	5/03	8	4
	5/04	4	2
	5/05	4	3
	5/05	4	1
	5/16	12	--
	5/21	8	5
5/23	6	8	
BOULDER	*--	6	8
	*--	6	4
	5/01	8	--
	5/01	4	--
	5/01	8	4
	5/02	5	2
	5/02	6	3
	5/07	7	4
	5/08	2	6
	5/08	7	4
	5/16	4	--
	5/19	2	3
	5/23	4	2
	*5/27	3	2

*Possible violation of season date or sex. All successful turkey hunters reported using shotguns.

Table 4. Statewide summary of Fall Merriam's wild turkey harvest statistics, 1964-93.

Year	Permits		Hunters		Hunter-Days		Turkeys		Percent Success**	Turkeys per Hunter-Day	Crippling Loss/100 Bagged	Turkeys Observed	Percent of Hunters Observing Turkeys
	Sold		Afield		Afield		Bagged						
1964	229		211		362		81		38	0.22	15	1,158	60
1965	214		207		406		50		24	0.12	8	730	29
1966*	192		187		471		43		23	0.09	7	756	36
1967	146		135		405		40		30	0.10	16	748	48
1968*	368		344		883		183		38	0.21	15	2,321	54
1969	223		210		549		36		11	0.06	19	466	17
1970	197		174		418		58		24	0.14	6	564	31
1971	184		174		444		60		21	0.14	8	451	28
1972	124		118		303		12		7	0.04	10	173	21
1973***	--		--		--		--		--	--	--	--	--
1974	29		26		79		3		12	0.04	33	83	38
1975	58		46		115		7		15	0.06	0	57	26
1976	68		56		136		15		27	0.11	7	182	32
1977	60		53		133		7		15	0.06	0	48	18
1978*	102		88		223		7		9	0.03	33	335	38
1979	46		36		71		3		9	0.05	0	61	19
1980	43		35		69		11		32	0.16	38	127	44
1981	63		55		114		12		22	0.11	56	141	32
1982	56		50		136		11		23	0.08	10	185	47
1983	61		49		112		15		28	0.13	0	303	49
1984	97		86		193		28		32	0.14	14	380	49
1985***	--		--		--		--		--	--	--	--	--
1986***	--		--		--		--		--	--	--	--	--
1987***	--		--		--		--		--	--	--	--	--
1988***	--		--		--		--		--	--	--	--	--
1989***	--		--		--		--		--	--	--	--	--
1990***	--		--		--		--		--	--	--	--	--
1991***	--		--		--		--		--	--	--	--	--
1992***	--		--		--		--		--	--	--	--	--
1993***	--		--		--		--		--	--	--	--	--
TOTALS	2,560		2,340		5,622		682		--	--	--	9,269	--
(1964-84)	122		111		268		32		21	0.10	14	441	34
AVERAGES													
(1964-84)													

*Some hunters hunted more than one area or failed to designate areas hunted. This accounts for the difference between totals given above and combined tables of separate units in Tables 5, 6 and 7.

**During 1968, the Boulder Mountain and East Zion units had two-bird season limits and the LaSal Mountains a one-bird limit; from 1969 through 1972, all areas had a two-bird limit. Hunter success was based on the number of successful hunters rather than total turkeys bagged.

*** No fall season.

Table 5. Wild turkey summer inventory summary, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Observations		Adults w/o Young		Total Young	Total Adults	Total Young	Hours of Effort			Birds/100 Hr
	#	Adults		Adult	Young	Young	Young				Vehicle Miles	Horse	Walk	
Northern Region														
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Central Region														
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	2	2	10	5.00	--	--	2	10	500	57	3	--	3	400
Uintah	3	3	16	5.33	--	--	3	16	533	--	--	--	--	--
REGIONAL TOTALS	5	5	26	5.20	--	--	5	26	520	57	3	--	3	1,033
Southeastern Region														
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	17	17	--	--	--	30	3	1	425
Grand	1	1	2	2.00	5	23	6	25	417	--	--	--	--	--
San Juan	3	3	7	2.33	--	--	9	12	7	58	87	2.5	2.5	380
REGIONAL TOTALS	4	4	9	2.25	5	23	26	35	32	91	117	5.5	3.5	744
STATE TOTALS	9	9	35	3.89	5	23	26	40	58	145	174	8.5	3.5	817

Table 6. Summary of the 1993 spring limited entry Rio Grande turkey season.

Data	Beaver	New Harmony	Pine Valley	Weber	STATE TOTALS
Permits Sold*	20	12	5	5	42
Applicants For Permits	220	117	43	251	631
No Hunts	1	0	0	0	1
Hunters Afield	19	12	5	5	41
Average Hunter-Days	5.00	3.30	3.60	7.60	4.88
Turkeys Bagged	11	8	4	3	26
Percent Success	58	67	80	60	63
Turkeys Bagged Per Hunter-Day	2.20	2.42	1.11	0.39	5.33
Age of Harvested Turkeys					
Yearling	2	1	1	1	5
Adult	9	7	3	2	21
Reported Crippling Loss (Loss/100 Bagged)	0	0	0	0	0
Illegal Kills	0	0	0	0	0

*The bid permits hunted the New Harmony Unit.

SHARP-TAILED GROUSE

SUMMARY

The Columbian sharp-tailed grouse is one of four species of grouse native to Utah. Sharp-tails were formerly abundant in the valley and foothill areas of northern and central Utah. Sharp-tailed grouse habitats were the most attractive areas for agricultural development and grazing. As a result, sharp-tail habitat was directly converted to farmland or was seriously impacted by heavy grazing.

There was no legal harvest of sharp-tailed grouse from 1980 through 1993. Since 1988, the number of birds present on active dancing grounds has been substantially greater than in recent years (Table 1.). It appears sharp-tailed grouse have made a moderate recovery in core areas. Numbers on the fringe of their range appear to be low. Concurrent with the upswing in sharp-tailed populations has been a succession of mild winters. Since the catastrophic winter of 1983-84, all winters have been normal or milder than normal except 1988-89 and 1992-93.

In Box Elder County, habitat associated with existing populations of sharp-tailed grouse has been relatively unchanged since 1983 except that about 100,000 acres in Box Elder County have been entered into the Conservation Reserve Program (CRP). This may be benefitting sharp-tailed grouse populations by providing undisturbed nesting and brood-rearing cover. The value of CRP to wildlife in Utah is being studied.

We have minimal recent data on sharp-tailed grouse populations in the Cache, Weber, and Morgan County areas. By 1984, populations in these areas were at or below minimum viable population levels. Efforts have increased over the past three years to locate "new" dancing grounds in these counties (Table 1.). New "core" sharp-tailed grouse habitat areas are being attributed to CRP lands in these counties.

Sharp-tailed grouse brood count information for Box Elder County in 1993 is shown in Table 2.



SHARP
TAILS

Table 1. Summary of sharp-tailed grouse dancing ground counts, 1978-93.

County	Dancing Ground Name	Year																
		1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Box Elder	West Hills Complex (Located 1977)	--	15	4	12	0	14	0	18	46	40	33	40**	75	53**	55**	5	
	Hunsaker's Field (Located 1977)	16	3	0	0	0	0	0	0	18	0	3	0	--	3	32	4	
	South White's Valley (Located 1977)	--	0	0	0	6	0	0	2	0	6	7	3	--	10	13	--	
	North White's Valley (Located 1977)	15	0	0	0	0	0	0	0	--	18	11	9**	--	14	5	3	
	Middle Canyon (Located 1991)														9**	14**	2	
	Pocatello Valley Complex (Located 1978)	42	7	7	19	19	14	5	9	20	20	19	16**	11	4	NC	--	
	Blue Creek (Located 1991)														6**	5**	0	
	Howell Valley #1 (Located 1991)														13**	6**	--	
	Microwave Tower (Located 1987)									6	6	7	9	--	--	NA	--	
	Sunset Pass (Located 1991)														8**	2**	--	
	Nucor (Located 1991)														11**	6**	A	
	Wellsville-Cottonwood (Located 1991)														8**	8	3	
	Snowville-Radio Tower (Located 1991)														8**	A	0	
	Cache	Bankhead Well (Relocated 1975)	7	2	2	0	0	--	--	--	--	--	--	--	--	NA	NC	--
Baxter Ridge (Relocated 1975)		--	--	3	5	3	--	--	--	--	--	--	--	--	NA	NC	--	
Crow Mountain Complex (Located 1979)		0	13	4	11	3	--	--	--	--	--	0	--	--	27**	18**	9	
High Creek (Located 1981)					7	--	--	--	--	--	--	0	--	--	22**	NC	--	
Clarkston (Located 1991)															20**	5**	A	
Four Mile #1 (Located 1991)															5**	27**	--	
Four Mile #2 (Located 1991)															4**		--	
McKenzie Flat (Located 1992)																3	--	
Morgan		Cottonwood (Located 1975)	22	28	--	--	--	--	--	--	--	--	--	--	--	NA	NC	--
		Deep Creek			4	--	--	--	--	--	--	--	--	--	--	NA	NC	--
	Robman Hollow (Located 1991)														11**	NC	--	
Weber	Monastery (Located 1969)	A	3	0	0	0	--	--	--	--	--	--	--	--	--	NC	--	
	Total Grounds Counted	9	15	16	17	15	11	2	11	6	8	12	11	2	18	16	9	
	Total Grouse Counted	102	71	24	57	31	28	5	29	84	90	80	77	86	236	210	26	
Average Number of Grouse/Ground		11.30	4.70	1.50	3.40	2.10	2.50	2.50	2.60	14.00	11.30	6.70	7.00	43.00	13.00	13.00	2.89	

**High sagebrush precluded an accurate count--birds were counted when flushed.

Since visitation by females at any given time is low, an estimated 90% of the grouse seen on the ground are males.

Therefore, this figure is an estimate of the males on the ground.

A = ACTIVE

NA = NOT ACTIVE

Table 2. Sharp-tailed grouse summer inventory, 1993.

Region and County	Distinct Broods		Mean Brood	Mixed Young & Adults		Total Young	Total Adults	Hours of Effort		Birds/100 Hr	
	# Adults	Young		Adults	Young			Vehicle Miles	Horse		Walk
Northern Region											
Box Elder	1	4	4.00	--	18	19	4	6	12	18	128
Cache	--	--	--	--	7	7	--	--	3	3	233
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	4	4.00	--	25	26	4	6	15	21	143
Central Region											
Juab											
Salt Lake											
Sampete											
Tooele											
Utah											
Wasatch											
REGIONAL TOTALS											
Southern Region											
Beaver											
Garfield											
Iron											
Kane											
Millard											
Piute											
Sevier											
Washington											
Wayne											
REGIONAL TOTALS											
Northeastern Region											
Daggett											
Duchesne											
Uintah											
REGIONAL TOTALS											
Southeastern Region											
Carbon											
Emery											
Grand											
San Juan											
REGIONAL TOTALS											
STATE TOTALS	1	4	4.00	0	0	26	4	--	15	15	240

PTARMIGAN

SUMMARY

The white-tailed ptarmigan (Lagopus leucurus) was introduced into the Uinta Mountains of northeastern Utah in 1976 with the release of birds captured in Colorado. The initial transplant consisted of 22 paired birds released in June 1976. A second release of 35 mixed young and adults was accomplished in September of that same year.

Breeding Territory and Brood Surveys

Surveys on the ptarmigan population continue, as time and manpower constraints allow. Two survey techniques are used. A breeding territory survey is conducted from mid- to late June. A brood survey is conducted from mid- to late August. Results of the last 10 and 11 years of survey data are found in Tables 1 and 2.

No spring survey of breeding territories and no summer brood survey was made in 1993.

Harvest

Ten hunters bought \$3.00 permits to hunt ptarmigan in Utah in 1993 (Table 3). An estimated 10 hunters actually pursued ptarmigan and no birds were killed. Thirty-eight percent of the hunters afield reported observing ptarmigan.

Many permits are obtained by sportsmen who think they might hunt during a fishing or big game hunting trip, but don't seriously plan on the ptarmigan hunt.



PTARMIGAN

Table 1. Summary of white-tailed ptarmigan breeding territories (pairs), 1983-93.

County	Location	(6/18-19)																				
		1983	1984	1985	1986	1987	1988	1989(2)	1990	1991	1992	1993										
Duchesne	Painter Basin																					
Duchesne	Gilbert Basin	C(1) A		C(1) A	C(1) A																	
Duchesne	Atwood Basin	N		N	N																	
Duchesne	Yellowstone River	C		C	C																	
		E		E	E																	
		L		L	L																	
Summit	Henry's Fork	L		L	L																	
		E		E	E																	
Summit	Flat Top Mountain	D	1	D	D	3																
Summit	Lake Blanchard																					
Summit	Beaver Creek																					
Summit	Smith's Fork																					
Uintah	Ledy Peak																					

(1) Excessive snow cover precluded access to trail-heads during the June breeding period.

(2) Investigator was incapacitated.

Table 2. White-tailed ptarmigan brood inventory, 1984-93.

Area: Statistics	DATE									
	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/	8/89	8/90	8/91	8/92	8/93
Painter Basin										
n	3									
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Henry's Fork					(e)					
n	0		4	3	3					
Mean Brood			3.75	4.00	2.33					
Young/100 Adult Hens			375	217	233					
Hens w/o Broods			0	3	6					
Adult Males										
Yellowstone										
n						2	1			
Mean Brood						4.00	4.00			
Young/100 Adult Hens						366	400			
Hens w/o Broods						4	0			
Adult Males						18	0			
Smith's Fork										
n			1							
Mean Brood				6.00						
Young/100 Adult Hens				120						
Hens w/o Broods				4						
Adult Males										
Atwood Basin										
n								1		
Mean Brood								2.00		
Young/100 Adult Hens								200		
Hens w/o Broods								0		
Adult Males								0		

Table 2. (continued)

Area:	DATE									
	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/	8/89	8/90	8/91	8/92	8/93
Flat Top Mountain					(e)					
n	1			1	3					
Mean Brood	6.00			6.00	4.33					
Young/100 Adult Hens				900	433					
Hens w/o Broods	1			0	9					
Adult Males				0	0					
Little E. Fork - Black's Fork										
n										
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Rainbow Basin										
n										
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Gilbert Basin										
n										
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Samuel's Draw										
n										
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Leidy Peak										
n				1						
Mean Brood				2.00						
Young/100 Adult Hens				200						
Hens w/o Broods				0						
Adult Males				0						

Table 2. (continued)

Area: Statistics	DATE									
	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/	8/89	8/90	8/91	8/92	8/93
East F. Black's Fork										
n										
Mean Brood										
Young/100 Adult Hens										
Hens w/o Broods										
Adult Males										
Joulicous Creek										
n				1	0					
Mean Brood				1.00	0.00					
Young/100 Adult Hens				300	0					
Hens w/o Broods				0	4					
Adult Males				0	0					
TOTALS					(e)					
n	1	3	5	6	6	2	1	1	1	1
Mean Brood	6.00	3.50	3.75	3.86	3.33	4.00	4.00	4.00	2.00	2.00
Young/100 Adult Hens	300	350	375	236	333	366	400	400	200	200
Hens w/o Broods	2	0	0	7	19	4	0	0	0	0
Adult Males	0	0	0	0	0	0	0	0	0	0
Total Birds Observed	..	18	19	47	45	18	5	5	3	3

d Flat Top Mountain between Henry's Fork and Smith's Fork

e Mixed Adults

n Number of Broods

Table 3. Summary of white-tailed ptarmigan harvest statistics, 1982-93. Estimates are calculated based upon 100 percent samples or projection factors.

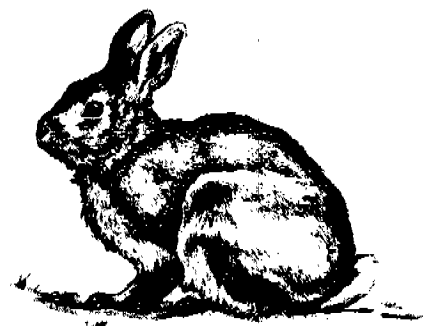
Year	Permits Sold		Hunters		Hunter-Days		Ptarmigan Bagged	Birds/Hunter	Ptarmigan/Hunter-Day	Crippling Loss/100 Bagged	Ptarmigan Observed	% Hunters		Immatures per 100 Adults
			Afield		Afield							Observing Ptarmigan	Immatures per 100 Adults	
1982	48	21	33	0	0.00	0	0.00	0	0	0	0	--	--	--
1983	31	13	21	14	0.67	14	1.08	0	0.67	0	25	30	--	--
1984	28	20	25	36	1.44	36	1.80	0	1.44	0	--	--	--	--
1985	55	10	13	7	0.54	7	0.70	14	0.54	14	9	14	--	--
1986	49	14	21	8	0.36	8	0.57	0	0.36	0	8	22	--	--
1987	45	9	9	8	0.89	8	0.89	--	0.89	--	--	--	--	--
1988**	28	15	15	22	1.47	22	1.47	--	1.47	--	59	--	--	4.50(11)
1989	20	3	18	13	0.72	13	4.33	--	0.72	--	35	--	--	--
1990	17	11	27	17	0.63	17	1.55	0	0.63	0	28	35	--	--
1991	15	13	16	26	1.63	26	2.00	0	1.63	0	95	50	--	--
1992	17	11	17	0	0.00	0	0.00	0	0.00	0	56	36	--	--
1993	10	10	13	13	1.00	13	1.30	0	1.00	0	140	38	--	--

**For the first time a handling fee of \$2.00 per permit was charged.
 Projection Factor = 1.11 (10 permits issued/9 questionnaires returned).

RABBITS AND HARES

SUMMARY

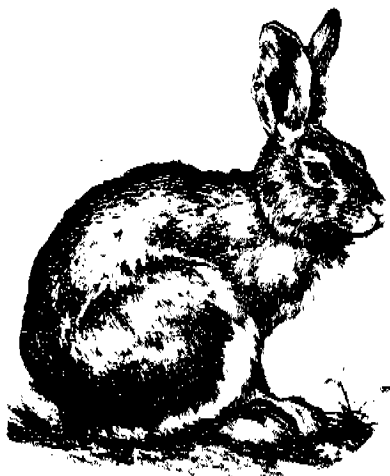
Cottontail Rabbits



Cottontail populations remain below a short term high in 1988.

Summer roadside counts indicated a decreased population density statewide. Harvest statistics indicated decreased hunter success and is still 59 percent below average.

Snowshoe Hares



Hunter numbers decreased 26 percent from the previous year and remained below average. Although efforts have been made to educate hunters in the identification of the snowshoe hare and the white-tailed jackrabbit, it is still a potential problem which could bias the snowshoe data.

COTTONTAIL RABBIT

Roadside Counts

Results of the annual roadside counts for 1993 are shown in Table 1 and Figure 1. The long-term trend of cottontails observed per mile and young per 100 adults is shown in Figure 4 and Tables 2 and 3. Indices for 1993 compared to 1992 and the previous 10-year (1983-92) average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Total miles driven	750	-12	-40
Total cottontails counted	84	-59	-78
Cottontails observed per mile	0.11	-54	-64
Young observed per 100 adults	35	-51	-54

Production data from roadside counts indicated a decrease in the population. The cottontail per mile index decreased 54 percent and was 64 percent below the long-term average.

Harvest

Hunter Questionnaire

Results of the 1993 hunter questionnaire are found in Table 4. Trends of cottontails bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) by county are found in Tables 5-7. Trends of statewide harvest statistics are found in Table 8 and Figures 2 and 3. Results of the 1993 season compared to 1992 and the 26-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Cottontail hunters	17,578	-14	-28
Cottontail harvest	64,400	-45	-59
Hunter-days afield	77,968	-6	-22
Cottontails per hunter-day	0.83	-41	-45
Cottontails per hunter	3.66	-36	-40

Total hunters decreased 14 percent from 1992. Total harvest decreased 45 percent. Total harvest was 59 percent below average. Hunter success was 45 percent below average. Harvest data indicate a year of below average populations of cottontails. Seven years of drought and the severe winter of 1992-93 have negatively affected rabbit populations statewide.

Field Bag Checks

COTTONTAILS/MILE AND JUVENILES/ADULT

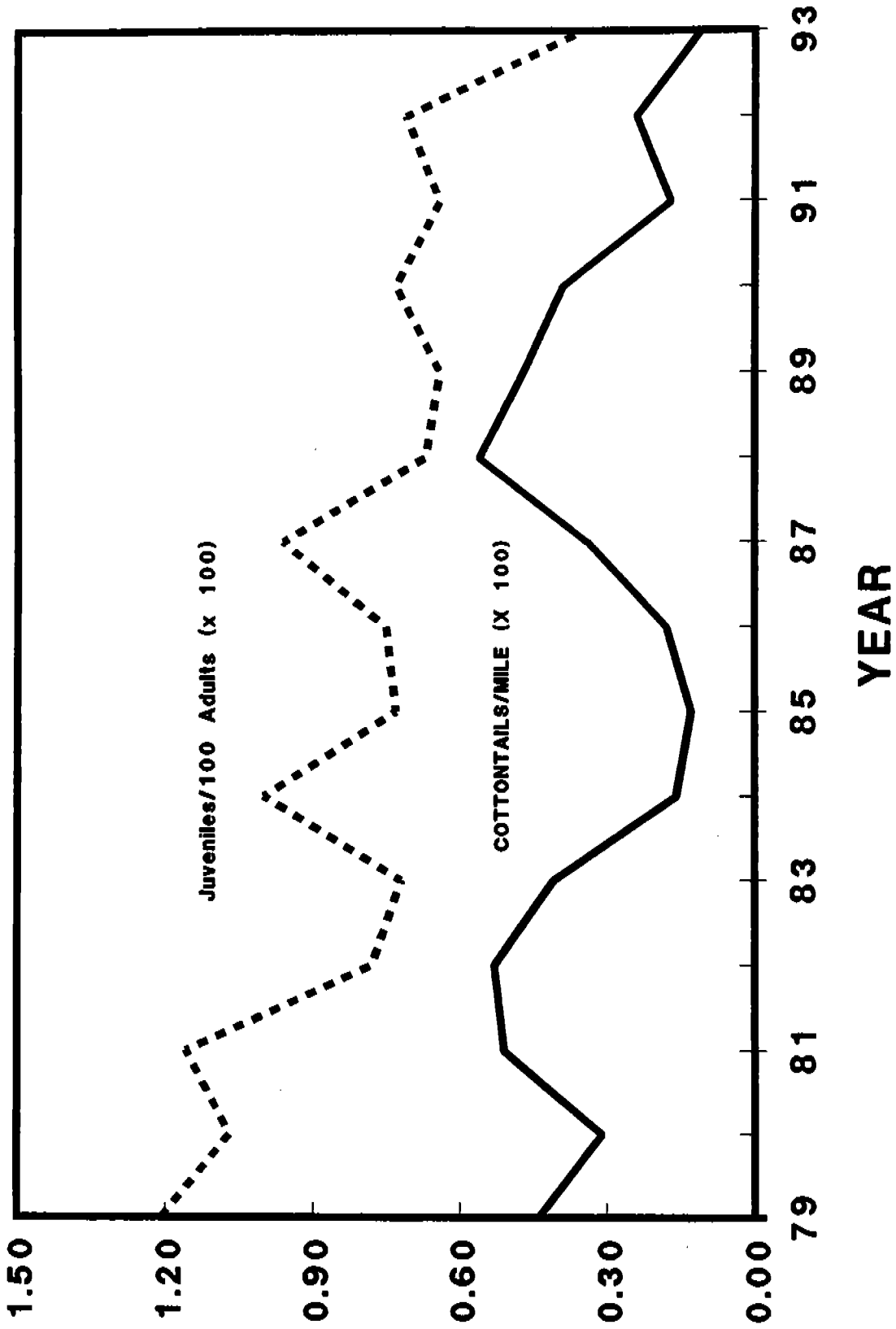


Figure 1. Cottontail rabbit population indices trends, 1979-93.

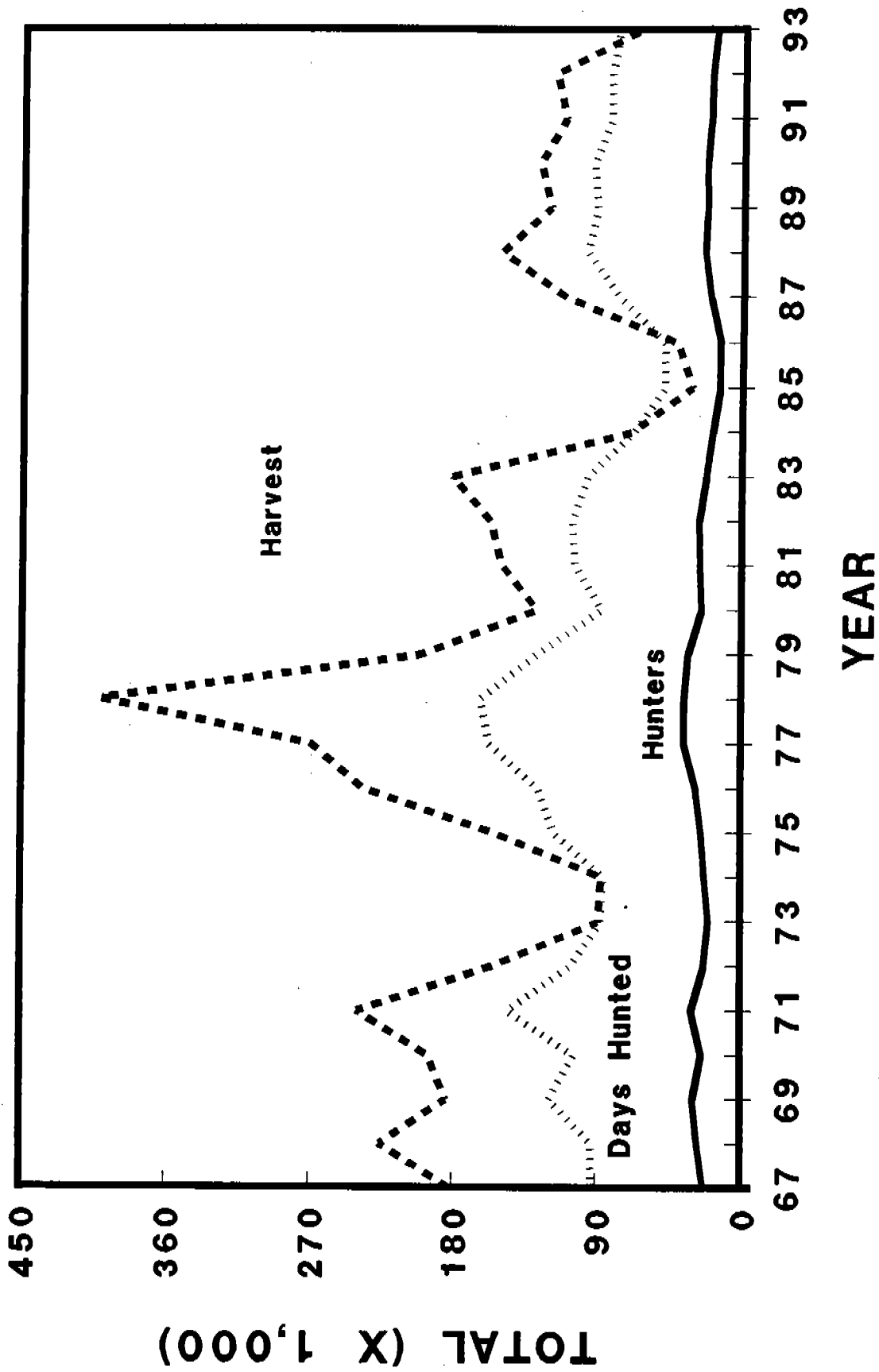


Figure 2. Statewide trends of cottontail rabbit harvest statistics, 1967-93.

COTTONTAILS PER HUNTER AND PER DAY

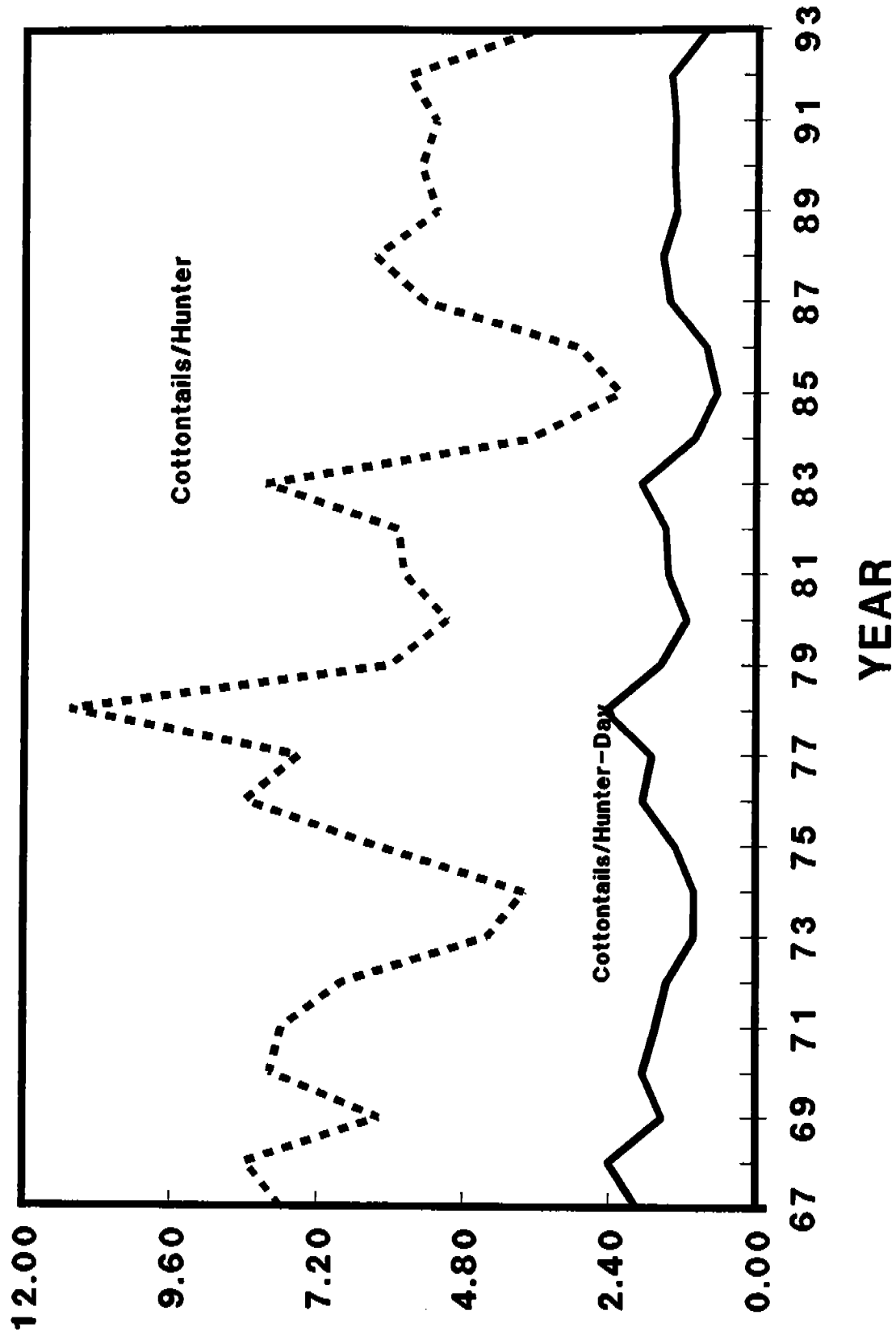


Figure 3. Statewide trends of cottontail rabbit hunter success rates, 1967-93.

FIGURE 4. COTTONTAIL RABBIT
 PRODUCTION INDICES, 1967-93.

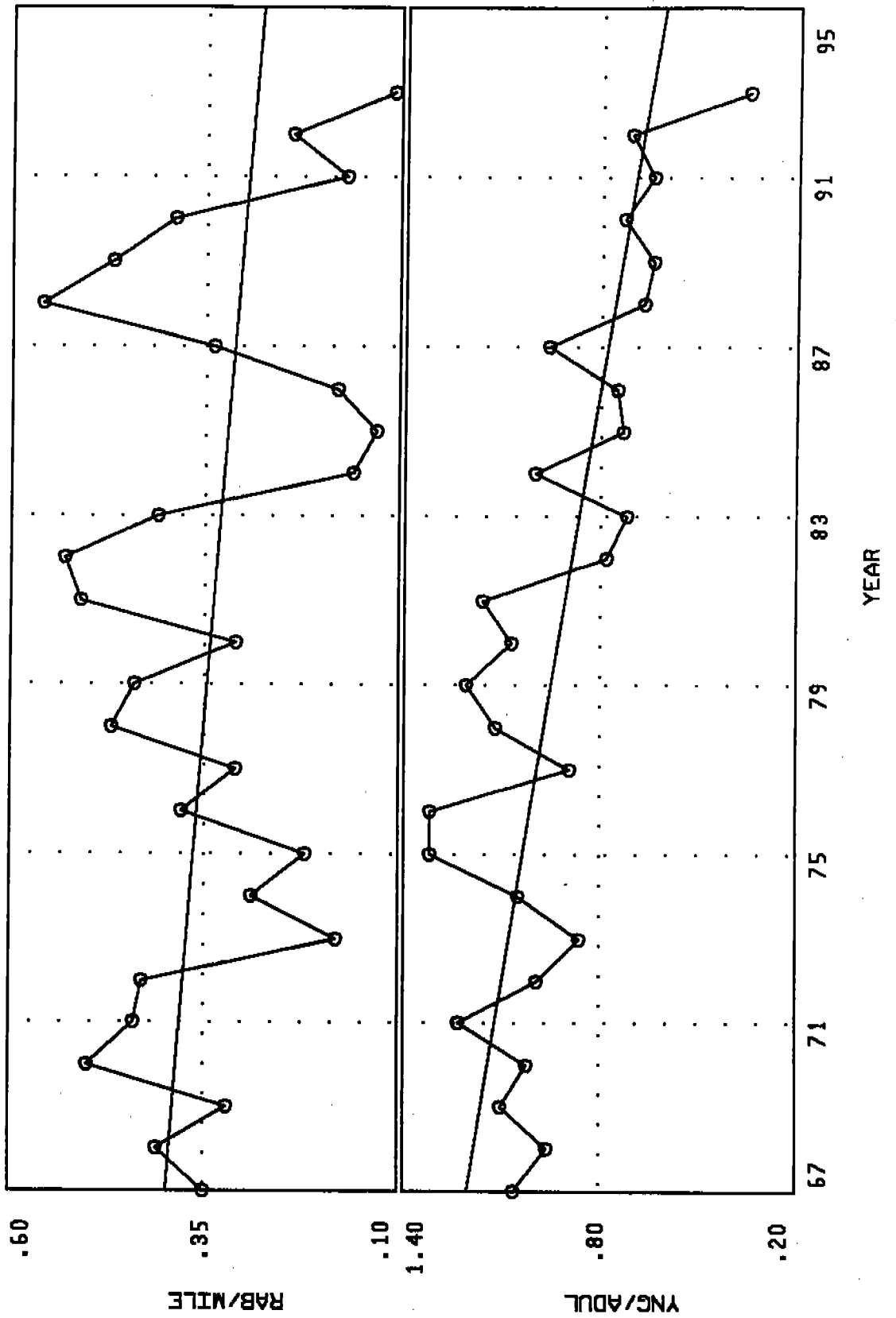


Table 1. Cottontail rabbit summer inventory summary, 1993.

Region and County	Miles Driven	Rabbits Observed			Total	Young/ 100 Adults	Rabbits/ Mile
		Adults	Young	Unclassified			
Northern Region							
Box Elder	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--
Central Region							
Juab	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--
Sanpete	99	1	--	--	1	--	0.01
Tooele	84	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--
REGIONAL TOTALS	183	1	--	--	1	--	0.01
Southern Region							
Beaver	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--
Northeastern Region							
Daggett	60	3	1	--	4	33	0.07
Duchesne	87	11	4	5	20	36	0.23
Uintah	60	5	4	1	10	80	0.17
REGIONAL TOTALS	207	19	9	6	34	47	0.16
Southeastern Region							
Carbon	90	--	--	12	12	--	0.13
Emery	90	--	--	5	5	--	0.06
Grand	90	--	--	18	18	--	0.20
San Juan	90	11	2	1	14	18	0.16
REGIONAL TOTALS	360	11	2	36	49	18	0.14
STATE TOTALS	750	31	11	42	84	35	0.11

Table 2. Summary of cottontail rabbits observed per mile during summer inventory, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	--	--	--	0.02	0.03	--	0.03	0.39	0.10	0.08	--	--	
Cache	--	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	0.02	--	--	--	--	--	--	--	--	
Summit	0.18	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.18	--	--	0.02	0.03	--	0.03	0.39	0.10	0.08	--	0.12	
Central Region													
Juab	--	0.00	0.00	0.02	0.00	0.54	0.30	0.23	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	0.57	--	--	--	--	0.47	0.22	0.65	0.09	0.15	--	--	
Tonele	--	0.02	0.00	0.01	0.02	0.18	--	--	--	0.03	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.57	0.01	0.00	0.01	0.02	0.36	0.26	0.45	0.09	0.08	--	0.19	
Southern Region													
Beaver	0.04	0.01	0.03	0.10	0.04	0.06	--	--	--	--	--	--	
Garfield	0.25	--	0.06	0.13	--	--	--	--	--	--	--	--	
Iron	0.38	0.27	0.33	0.53	0.26	--	--	--	--	--	--	--	
Kane	--	--	0.52	0.47	0.97	1.09	--	--	--	--	--	--	
Millard	0.16	0.04	0.02	0.08	0.09	0.09	--	0.08	--	--	--	--	
Piute	0.03	--	--	0.06	0.05	--	--	--	--	--	--	--	
Sevier	0.23	--	--	--	--	--	--	--	--	--	--	--	
Washington	0.38	--	0.23	0.12	0.12	0.36	0.33	--	--	--	--	--	
Wayne	--	0.80	--	0.20	0.24	0.34	--	--	0.83	0.21	--	--	
REGIONAL TOTALS	0.19	0.18	0.19	0.24	0.27	0.33	0.33	0.08	0.83	0.21	--	0.29	
Northeastern Region													
Daggett	0.58	0.22	0.12	0.22	0.66	0.85	0.50	0.55	--	0.28	33	--	
Duchesne	0.58	0.28	0.13	0.44	0.86	1.49	1.04	0.23	0.03	0.60	36	--	
Uintah	2.97	0.11	0.00	0.02	0.36	1.26	1.40	1.00	--	0.18	80	--	
REGIONAL TOTALS	1.21	0.21	0.09	0.25	0.65	1.18	0.91	0.57	0.03	0.38	47	0.55	
Southeastern Region													
Carbon	0.11	--	0.05	0.08	0.33	0.41	0.34	0.02	0.20	0.21	--	--	
Emery	0.23	0.18	0.20	--	0.40	0.34	0.33	0.40	0.37	0.34	--	--	
Grand	0.15	0.13	0.67	0.80	--	0.10	0.06	0.01	0.05	0.13	--	--	
San Juan	0.40	--	0.14	0.37	0.29	0.59	0.55	0.80	0.28	0.34	18	--	
REGIONAL TOTALS	0.25	0.17	0.13	0.17	0.38	0.36	0.32	0.36	0.24	0.26	18	0.26	
STATE TOTALS	0.41	0.16	0.13	0.18	0.34	0.56	0.47	0.39	0.17	0.24	35	0.30	

Table 3. Summary of cottontail rabbit young per 100 adults, 1983-93.

Region and County	Year												Average 1983-92
	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1983-92	
Northern Region													
Box Elder	--	--	--	0	25	--	200	200	13	67	--	--	
Cache	--	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	
Rich	67	--	--	50	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	67	--	--	20	25	--	200	200	13	67	--	84	
Central Region													
Juab	--	0	0	0	0	20	13	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	225	--	--	--	--	88	40	40	50	50	0.01	0.01	
Tonele	--	--	--	--	100	120	--	--	--	100	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	225	0	0	0	100	57	23	27	50	57	0.01	54	
Southern Region													
Beaver	33	--	--	22	--	--	--	--	--	--	--	--	
Garfield	120	--	33	38	--	--	--	--	--	--	--	--	
Iron	35	40	82	75	--	--	--	--	--	--	--	--	
Kane	--	--	100	71	111	149	--	--	--	--	--	--	
Millard	125	75	200	170	114	110	--	100	--	--	--	--	
Plute	200	--	--	--	--	--	--	--	--	--	--	--	
Sevier	61	--	--	--	--	--	--	--	--	--	--	--	
Washington	81	--	73	133	175	100	131	--	--	--	--	--	
Wayne	--	380	--	360	2100	244	--	--	369	138	--	--	
REGIONAL TOTALS	82	215	85	100	137	136	131	100	369	138	--	149	
Northeastern Region													
Daggett	66	33	46	136	116	30	59	55	--	89	0.07	0.07	
Duchesne	16	22	15	26	24	39	29	--	50	138	0.23	0.23	
Uintah	76	233	0	100	264	170	239	95	--	10	0.17	0.17	
REGIONAL TOTALS	63	42	31	58	74	46	82	58	50	95	0.16	60	
Southeastern Region													
Carbon	40	--	--	150	567	500	400	400	--	25	0.13	0.13	
Emery	75	217	216	--	54	50	--	--	--	--	0.06	0.06	
Grand	150	33	300	300	--	--	--	--	--	40	0.20	0.20	
San Juan	43	--	43	61	47	49	80	60	54	37	0.16	0.16	
REGIONAL TOTALS	54	156	88	69	100	64	110	67	100	33	0.14	84	
STATE TOTALS	72	100	73	75	96	67	64	73	64	71	0.12	76	

Table 4. Summary of cottontail rabbit hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	COTTONTAILS BAGGED	COTTONTAILS HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	139	6,707	4,750	0.71	8.60	7.38
CACHE	23	1,729	1,311	0.76	2.22	2.04
DAVIS	6	228	19	0.08	0.29	0.03
MORGAN	8	228	76	0.33	0.29	0.12
RICH	23	646	361	0.56	0.83	0.56
SUMMIT	13	513	627	1.22	0.66	0.97
WEBER	12	627	399	0.64	0.80	0.62
REGIONAL TOTALS	224	10,679	7,544	0.71	13.70	11.71
CENTRAL REGION						
JUAB	86	4,826	3,990	0.83	6.19	6.20
SALT LAKE	12	1,102	627	0.57	1.41	0.97
SANPETE	29	1,558	627	0.40	2.00	0.97
TOOELE	212	13,548	6,555	0.48	17.38	10.18
UTAH	96	6,023	3,401	0.56	7.73	5.28
WASATCH	10	456	380	0.83	0.58	0.59
REGIONAL TOTALS	445	27,515	15,582	0.57	35.29	24.20
SOUTHERN REGION						
BEAVER	7	171	114	0.67	0.22	0.18
GARFIELD	8	361	551	1.53	0.46	0.86
IRON	19	1,501	1,197	0.80	1.93	1.86
KANE	8	855	1,387	1.62	1.10	2.15
MILLARD	51	3,420	5,339	1.56	4.39	8.29
PIUTE	4	152	95	0.63	0.19	0.15
SEVIER	35	2,109	1,463	0.69	2.71	2.27
WASHINGTON	34	4,389	4,484	1.02	5.63	6.96
WAYNE	14	627	456	0.73	0.80	0.71
REGIONAL TOTALS	180	13,586	15,088	1.11	17.43	23.43
NORTHEASTERN REGION						
DAGGETT	11	1,368	2,014	1.47	1.75	3.13
DUCHESNE	78	7,221	8,342	1.16	9.26	12.95
UINTAH	72	6,479	5,339	0.82	8.31	8.29
REGIONAL TOTALS	161	15,069	15,696	1.04	19.33	24.37
SOUTHEASTERN REGION						
CARBON	45	3,914	2,717	0.69	5.02	4.22
EMERY	36	3,078	2,698	0.88	3.95	4.19
GRAND	10	931	1,729	1.86	1.19	2.69
SAN JUAN	19	1,900	1,539	0.81	2.44	2.39
REGIONAL TOTALS	110	9,824	8,684	0.88	12.60	13.48
UNKNOWN	15	1,292	1,805	1.40	1.66	2.80
STATE TOTALS	1,135	77,968	64,400	0.83	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 5. Summary of cottontail rabbits bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.73	2.25	1.78	1.29	1.49	1.31	1.46	0.71
Cache	0.18	1.78	0.37	0.66	0.87	1.41	1.50	0.76
Davis	4.00	0.67	0.50	1.00	0.25	1.50	0.00	0.08
Morgan	0.05	1.17	1.50	0.17	0.43	1.53	1.08	0.33
Rich	0.74	1.33	1.86	1.37	2.52	2.62	2.50	0.56
Summit	0.29	1.44	0.92	0.58	0.72	1.24	0.81	1.22
Weber	0.69	2.83	0.61	0.27	1.06	0.88	0.89	0.64
REGIONAL TOTALS	0.57	2.14	1.49	1.09	1.55	1.47	1.50	0.71
<u>Central Region</u>								
Juab	0.78	1.74	1.52	1.52	1.55	1.68	1.54	0.83
Salt Lake	1.06	1.26	0.53	1.35	0.79	0.72	0.97	0.57
Sanpete	0.60	1.25	1.62	1.10	0.85	1.26	0.86	0.40
Tooele	0.71	1.32	1.37	1.20	1.08	1.23	1.26	0.48
Utah	0.94	1.21	1.04	0.90	0.84	0.99	1.00	0.56
Wasatch	0.84	1.28	0.99	1.50	0.69	1.06	1.70	0.83
REGIONAL TOTALS	0.78	1.32	1.27	1.18	1.03	1.24	1.19	0.57
<u>Southern Region</u>								
Beaver	0.61	1.00	1.44	0.41	1.17	0.69	2.44	0.67
Garfield	1.25	0.71	1.41	1.97	1.03	0.46	0.52	1.53
Iron	0.87	0.44	1.58	0.85	1.21	1.06	0.94	0.80
Kane	1.12	0.58	1.41	1.00	0.90	0.93	0.97	1.62
Millard	0.70	0.82	1.09	1.27	1.84	1.15	1.35	1.56
Piute	1.00	1.00	1.25	0.28	1.36	0.57	0.00	0.63
Sevier	0.56	1.04	1.45	0.97	1.45	0.65	1.27	0.69
Washington	0.94	0.95	2.10	0.91	0.89	0.68	1.03	1.02
Wayne	1.53	1.22	1.49	1.05	1.34	1.20	2.26	0.73
REGIONAL TOTALS	0.89	0.85	1.41	1.05	1.30	0.89	1.32	1.11
<u>Northeastern Region</u>								
Daggett	1.96	3.16	3.02	1.65	1.79	1.83	2.00	1.47
Duchesne	1.01	1.63	2.38	1.49	1.83	2.15	1.97	1.16
Uintah	0.49	1.89	2.32	3.16	2.41	1.61	1.74	0.82
REGIONAL TOTALS	0.96	1.95	2.40	2.13	2.10	1.86	1.87	1.04
<u>Southeastern Region</u>								
Carbon	0.49	1.34	1.29	0.97	1.43	1.75	1.51	0.69
Emery	1.05	1.00	1.78	0.80	1.06	1.03	1.43	0.88
Grand	1.28	2.00	2.03	1.00	1.58	1.75	1.66	1.86
San Juan	1.27	2.57	1.67	1.28	1.37	1.87	2.34	0.81
REGIONAL TOTALS	0.93	1.37	1.55	0.93	1.28	1.50	1.63	0.88
Unknown counties	2.50	1.04	1.49	2.00	0.00	0.00	0.00	1.40
STATE TOTALS	0.83	1.43	1.55	1.32	1.36	1.35	1.41	0.83

Table 6. Percentage distribution of cottontail rabbit harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	5.68	12.83	12.11	7.20	9.84	9.06	13.30	7.38
Cache	0.25	0.91	0.27	0.47	1.07	1.61	1.50	2.04
Davis	0.41	0.04	0.12	0.07	0.02	0.14	0.00	0.03
Morgan	0.10	0.15	0.19	0.03	0.05	0.41	0.65	0.12
Rich	1.98	0.53	1.05	1.92	6.07	4.14	4.31	0.56
Summit	0.56	0.57	0.77	0.73	0.63	2.00	0.79	0.97
Weber	0.56	1.44	0.42	0.14	0.27	0.45	0.59	0.62
REGIONAL TOTALS	9.53	16.49	14.96	10.55	17.95	17.80	21.14	11.71
<u>Central Region</u>								
Juab	2.84	5.17	6.05	6.32	5.86	7.68	7.50	6.20
Salt Lake	0.91	1.19	0.49	0.40	0.68	0.36	1.09	0.97
Sanpete	2.38	5.61	3.74	3.70	3.34	2.80	3.39	0.97
Tooele	9.99	11.67	13.72	14.73	11.60	16.76	15.72	10.18
Utah	7.66	11.07	8.61	5.20	6.51	6.20	6.42	5.28
Wasatch	1.83	1.73	0.92	0.47	0.44	1.09	1.10	0.59
REGIONAL TOTALS	25.61	36.47	33.55	30.82	28.43	34.88	35.22	24.20
<u>Southern Region</u>								
Beaver	1.12	0.95	0.68	0.40	0.44	0.92	1.51	0.18
Garfield	3.04	0.26	0.42	2.66	1.16	0.09	0.17	0.86
Iron	2.94	0.26	1.54	0.92	2.02	1.03	1.03	1.86
Kane	2.43	0.33	0.84	1.23	0.90	1.33	0.50	2.15
Millard	4.26	3.48	2.99	2.80	5.02	4.18	4.99	8.29
Piute	0.30	0.08	0.22	0.09	0.61	0.06	0.00	0.15
Sevier	0.91	1.22	2.28	1.66	3.07	1.75	1.79	2.27
Washington	6.09	0.77	1.90	2.69	2.02	1.34	0.94	6.96
Wayne	1.17	0.48	0.77	1.02	1.08	1.12	0.92	0.71
REGIONAL TOTALS	22.26	7.88	11.69	13.46	16.33	11.84	11.85	23.43
<u>Northeastern Region</u>								
Daggett	5.58	4.41	2.82	3.21	2.37	3.28	1.63	3.13
Duchesne	7.05	7.68	9.43	12.37	8.55	10.98	8.67	12.95
Uintah	3.35	7.03	13.20	19.31	13.44	9.10	7.25	8.29
REGIONAL TOTALS	15.97	19.13	25.45	34.89	24.27	23.36	17.55	24.37
<u>Southeastern Region</u>								
Carbon	4.87	6.26	4.65	4.56	5.83	5.04	6.05	4.22
Emery	9.53	5.63	5.91	3.78	4.20	3.26	4.13	4.19
Grand	5.07	2.53	0.74	0.26	0.66	0.66	0.73	2.69
San Juan	6.90	2.90	0.77	1.43	2.33	3.15	3.33	2.39
REGIONAL TOTALS	26.37	17.34	12.09	10.04	13.02	12.12	14.24	13.48
Unknown counties	0.25	2.66	2.24	0.24	0.00	0.00	0.00	2.80
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 7. Percentage distribution of cottontail rabbit hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	6.52	8.17	10.53	7.34	9.00	9.33	12.87	8.60
Cache	1.18	0.73	1.15	0.93	1.67	1.53	1.41	2.22
Davis	0.08	0.09	0.37	0.09	0.09	0.13	0.00	0.29
Morgan	1.65	0.19	0.20	0.27	0.15	0.36	0.85	0.29
Rich	2.24	0.57	0.87	1.84	3.28	2.12	2.44	0.83
Summit	1.61	0.57	1.30	1.64	1.19	2.16	1.37	0.66
Weber	0.68	0.73	1.06	0.68	0.35	0.69	0.94	0.80
REGIONAL TOTALS	13.97	11.07	15.51	2.80	15.74	16.33	19.88	13.70
<u>Central Region</u>								
Juab	3.05	4.26	6.15	5.48	5.15	6.16	6.88	6.19
Salt Lake	0.72	1.36	1.46	0.39	1.17	0.67	1.58	1.41
Sanpete	3.30	6.45	3.57	4.41	5.35	2.98	5.56	2.00
Tooele	11.68	12.63	15.44	16.16	14.61	18.35	17.65	17.38
Utah	6.81	13.07	12.83	7.61	10.50	8.43	9.06	7.73
Wasatch	1.82	1.94	1.44	0.41	0.86	1.39	0.92	0.58
REGIONAL TOTALS	27.38	39.73	40.90	34.45	37.63	37.98	41.65	35.29
<u>Southern Region</u>								
Beaver	1.52	1.36	0.73	1.27	0.51	1.79	0.88	0.22
Garfield	2.03	0.54	0.46	1.77	1.54	0.27	0.45	0.46
Iron	2.84	0.85	1.51	1.41	2.27	1.30	1.54	1.93
Kane	1.82	0.82	0.92	1.61	1.36	1.91	0.73	1.10
Millard	5.08	6.07	4.24	2.91	3.72	4.92	5.21	4.39
Piute	0.25	0.12	0.27	0.41	0.62	0.15	0.04	0.19
Sevier	1.35	1.68	2.43	2.25	2.88	3.61	1.99	2.71
Washington	5.42	1.17	1.40	3.91	3.10	2.67	1.28	5.63
Wayne	0.63	0.57	0.80	1.27	1.10	1.26	0.58	0.80
REGIONAL TOTALS	20.95	13.23	12.81	16.82	17.10	17.89	12.70	17.43
<u>Northeastern Region</u>								
Daggett	2.37	2.00	1.44	2.57	1.80	2.42	1.15	1.75
Duchesne	5.80	6.74	6.13	10.91	6.36	6.87	6.22	9.26
Uintah	5.71	5.34	8.81	8.05	7.55	7.61	5.88	8.31
REGIONAL TOTALS	13.88	14.09	16.38	21.52	15.71	16.90	13.25	19.33
<u>Southeastern Region</u>								
Carbon	8.34	6.68	5.60	6.20	5.55	3.89	5.66	5.02
Emery	7.58	8.08	5.15	6.23	5.39	4.25	4.08	3.95
Grand	3.30	1.81	0.56	0.34	0.57	0.50	0.62	1.19
San Juan	4.53	1.62	0.72	1.48	2.31	2.27	2.01	2.44
REGIONAL TOTALS	23.74	18.19	12.04	14.25	13.82	10.91	12.37	12.60
Unknown counties	0.08	3.65	2.33	0.16	0.00	0.00	0.15	1.66
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 8. Statewide summary of cottontail rabbit harvest statistics, 1967-92.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Cottontails Per Hunter-Day	Cottontails Per Hunter
1967	23,249	181,812	92,681	1.95	7.79
1968	26,889	225,450	93,126	2.42	8.38
1969	29,760	184,034	119,596	1.54	6.18
1970	24,486	195,248	103,725	1.86	7.97
1971	30,824	239,511	145,287	1.65	7.78
1972	22,835	155,102	105,941	1.46	6.79
1973	20,109	88,603	87,036	1.02	4.41
1974	22,737	86,506	85,499	1.01	3.80
1975	24,803	154,182	116,707	1.32	6.22
1976	28,239	235,952	126,737	1.86	8.39
1977	35,831	269,263	157,257	1.71	7.51
1978	35,590	401,071	163,019	2.46	11.27
1979	33,385	200,223	127,497	1.57	6.00
1980	25,156	127,652	87,051	1.47	5.07
1981	25,906	149,765	104,183	1.44	5.78
1982	26,714	156,696	105,644	1.48	5.87
1983	22,467	180,767	96,151	1.88	8.05
1984	18,616	69,186	67,643	1.02	3.72
1985	14,059	31,397	48,371	0.65	2.23
1986	13,992	40,636	48,694	0.83	2.90
1987	20,322	110,411	77,047	1.43	5.43
1988	24,076	150,386	97,190	1.55	6.25
1989	22,878	120,075	91,264	1.32	5.25
1990	23,070	127,389	93,515	1.36	5.52
1991	21,137	111,407	82,772	1.35	5.27
1992	20,509	117,454	83,154	1.41	5.73
1993	17,578	64,400	77,968	0.83	3.66
Totals					
(1967-93)	655,217	4,174,578	2,684,755	--	--
Averages					
(1967-92)	24,525	158,084	100,261	1.50	6.14

Table 9. Cottontail rabbit field bag check summary, 1993.

Region and County	All Hunts				Complete Hunts					
	Total Parties	Total Hunters	Total Hours	Total Rabbits	Complete Hunts	Total Hunters	Total Hours	Total Rabbits	Rabbits/ Hunter	Rabbits/ 100 Hr
Northern Region										
Box Elder	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Central Region										
Juab	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southern Region										
Beaver	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--
Serier	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Northeastern Region										
Daggett	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
Southeastern Region										
Carbon	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS										
STATE TOTALS										

Table 10. Cottontail rabbit hunter success trend as determined by field bag check, 1988-93.

Region and County	1988		1989		1990		1991		1992		1993	
	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr
Northern Region												
Box Elder	1.84	44	314	3.14	25	1.50	313	3.57	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	100	1.25	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	1.50	43	42	1.86	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1.77	44	93	2.22	25	0.21	313	3.57	--	--	--	--
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sampete	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	150	1.50	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	21	1.02	--	--	--	--
REGIONAL TOTALS	--	--	150	0.17	--	--	21	1.02	--	--	--	--
Northeastern Region												
Daggett	8.00	379	--	--	--	--	--	--	1.25	50	--	--
Duchesne	2.94	104	--	--	450	9.00	48	1.38	--	--	--	--
Uintah	4.00	147	93	2.20	179	8.10	66	1.91	--	--	--	--
REGIONAL TOTALS	4.01	149	93	0.73	187	5.10	61	1.77	1.25	50	--	--
Southeastern Region												
Carbon	0.00	0	--	--	--	--	--	--	--	--	--	--
Emery	1.00	33	--	--	--	--	--	--	--	--	--	--
Grand	0.83	42	--	--	--	--	--	--	--	--	--	--
San Juan	0.33	20	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	0.67	32	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	2.69	83	95	2.15	143	5.19	29	1.26	1.25	50	--	--

SNOWSHOE HARE

Harvest

Results of the 1993 hunter questionnaire are found in Table 11. Trends of snowshoe hares bagged per hunter-day, percent of harvest and percent of pressure (hunter-days) are found in Tables 12-14. Trend in statewide harvest statistics by year are shown in Table 15 and Figures 1 and 2. The 1993 season compared to 1992 and the 18-year average follow:

	<u>1993</u>	<u>Percent change from</u>	
		<u>1992</u>	<u>Average</u>
Snowshoe hare hunters	2,755	-26	-45
Snowshoe hares harvested	4,237	-41	-59
Hunter-days afield	10,774	-9	-27
Snowshoes per hunter-day	0.39	-35	-39
Snowshoes per hunter	1.54	-19	-19

Significant misidentification of white-tailed jackrabbits as snowshoe hares was anticipated prior to mailing the harvest questionnaire following the first season in 1975. This proved to be the case as a significant harvest of snowshoe hares was reported for counties outside the known range of the species. It was assumed that the problem was statewide, not just confined to those counties. Several attempts were made in the 1970's to reduce misidentification through pictures and descriptions in leaflets and questionnaires.

Beginning in 1988, harvest questionnaires, and in 1989 the Upland Game Proclamation had drawings and descriptions of the various rabbits in an attempt to reduce misidentification. We believe this has been successful.

Results of the 1993 harvest questionnaire indicates a 35 percent decrease in hunter success compared to 1992. Success was below the long-term average.

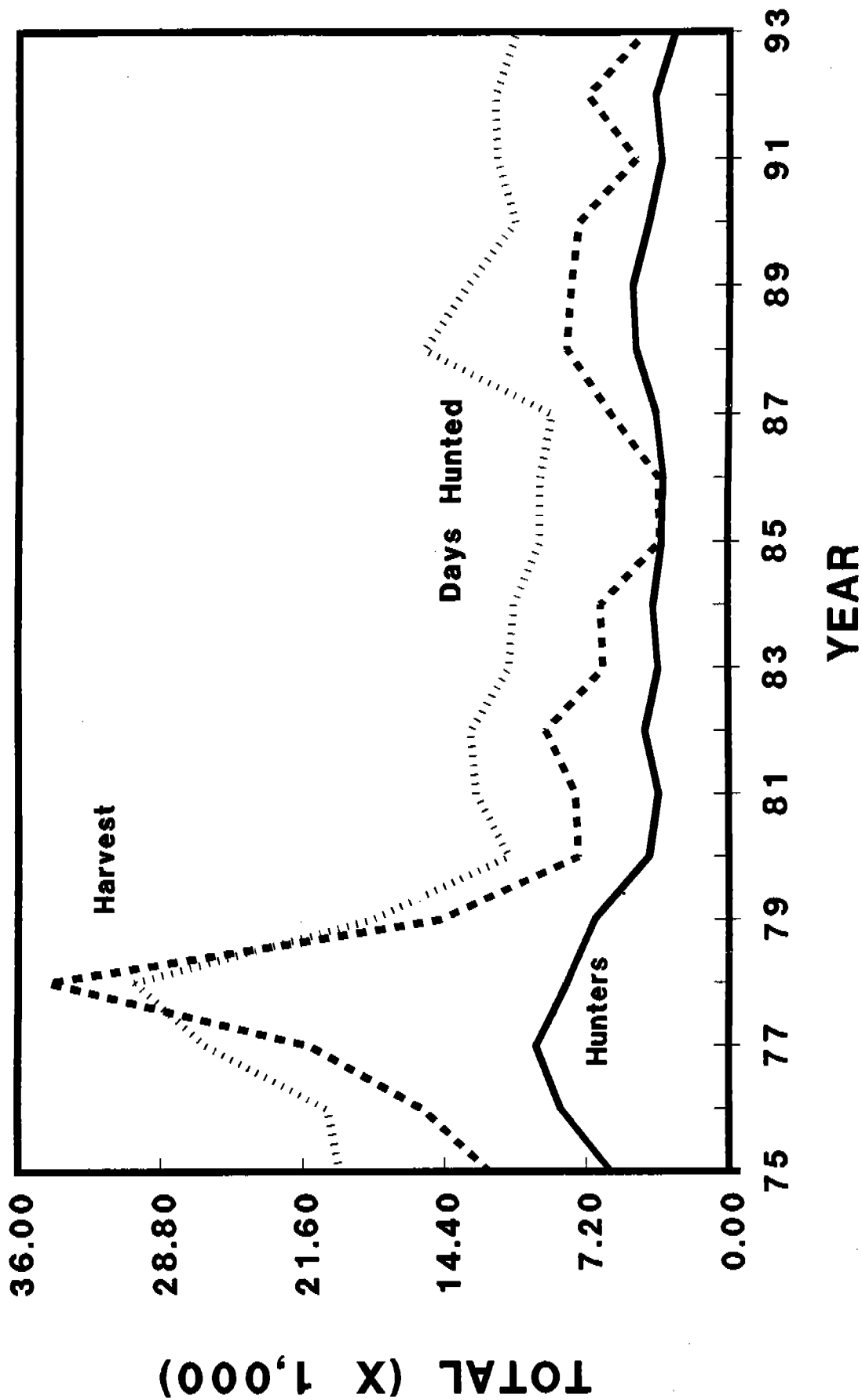


Figure 1. Statewide trends of snowshoe hare harvest statistics, 1975-93.

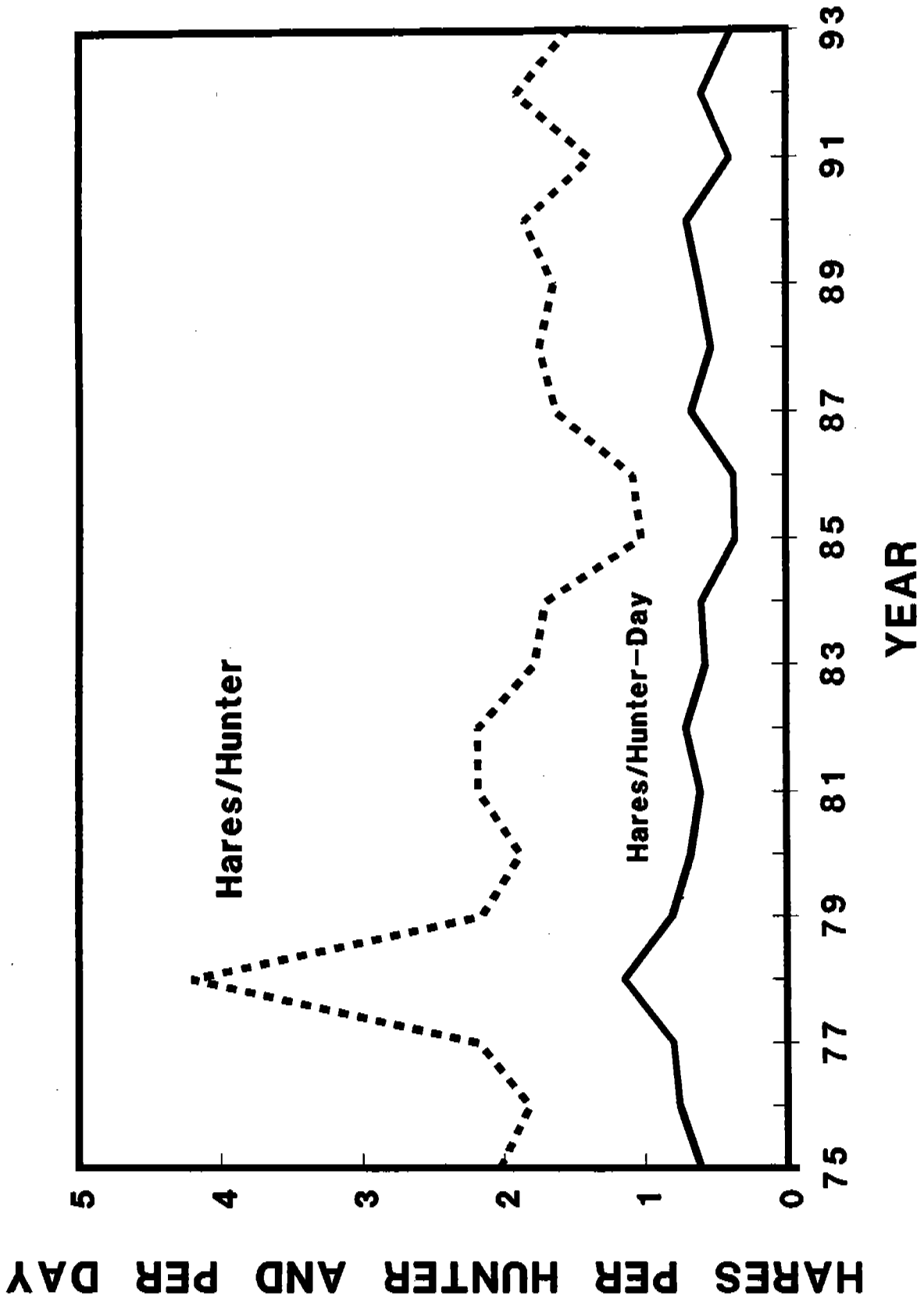


Figure 2. Statewide trends of snowshoe hare hunter success rates, 1975-93.

Table 11. Summary of snowshoe hare hunter success and distribution of harvest and hunting pressure by region and county, 1993.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	SNOWSHOES BAGGED	SNOWSHOES HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	28	1,007	456	0.45	9.35	10.76
CACHE	12	494	209	0.42	4.59	4.93
DAVIS	1	38	0	0.00	0.35	0.00
MORGAN	3	57	0	0.00	0.53	0.00
RICH	4	152	57	0.38	1.41	1.35
SUMMIT	6	323	57	0.18	3.00	1.35
WEBER	8	323	361	1.12	3.00	8.52
REGIONAL TOTALS	62	2,394	1,140	0.48	22.22	26.91
CENTRAL REGION						
JUAB	1	19	0	0.00	0.18	0.00
SALT LAKE	2	589	0	0.00	5.47	0.00
SANPETE	8	114	76	0.67	1.06	1.79
TOOELE	20	1,349	342	0.25	12.52	8.07
UTAH	13	1,216	95	0.08	11.29	2.24
WASATCH	7	114	988	8.67	1.06	23.32
REGIONAL TOTALS	51	3,401	1,501	0.44	31.57	35.43
SOUTHERN REGION						
BEAVER	0	0	0	0.00	0.00	0.00
GARFIELD	1	133	0	0.00	1.23	0.00
IRON	0	0	0	0.00	0.00	0.00
KANE	0	0	0	0.00	0.00	0.00
MILLARD	3	589	190	0.32	5.47	4.48
PIUTE	1	0	0	0.00	0.00	0.00
SEVIER	5	304	133	0.44	2.82	3.14
WASHINGTON	0	0	0	0.00	0.00	0.00
WAYNE	5	304	76	0.25	2.82	1.79
REGIONAL TOTALS	15	1,330	399	0.30	12.35	9.42
NORTHEASTERN REGION						
DAGGETT	2	570	247	0.43	5.29	5.83
DUCHESNE	13	1,216	266	0.22	11.29	6.28
UINTAH	10	1,406	209	0.15	13.05	4.93
REGIONAL TOTALS	25	3,192	722	0.23	29.63	17.04
SOUTHEASTERN REGION						
CARBON	5	266	76	0.29	2.47	1.79
EMERY	4	95	57	0.60	0.88	1.35
GRAND	0	0	0	0.00	0.00	0.00
SAN JUAN	1	0	0	0.00	0.00	0.00
REGIONAL TOTALS	10	361	133	0.37	3.35	3.14
UNKNOWN	4	95	342	3.60	0.88	8.07
STATE TOTALS	167	10,774	4,237	0.39	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 12. Summary of snowshoe hare bagged per hunter-day by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	0.38	0.35	0.78	0.33	0.54	0.38	0.52	0.45
Cache	0.00	1.67	0.21	1.10	0.56	0.30	0.26	0.42
Davis	0.50	0.25	0.40	1.50	0.00	0.03	0.00	0.00
Morgan	0.03	0.00	0.67	0.36	0.80	2.17	0.15	0.00
Rich	0.56	1.27	0.33	0.51	0.76	1.31	1.15	0.38
Summit	0.29	0.50	0.36	0.73	1.05	0.24	0.62	0.18
Weber	1.00	0.38	0.25	0.50	0.25	0.25	1.00	1.12
REGIONAL TOTALS	0.29	0.76	0.40	0.63	0.70	0.49	0.54	0.48
<u>Central Region</u>								
Juab	1.44	0.00	0.17	0.00	0.53	0.50	0.38	0.00
Salt Lake	0.30	0.00	0.48	0.38	0.00	0.22	0.08	0.00
Sanpete	0.30	0.57	0.68	0.64	1.08	0.78	0.43	0.67
Tooele	0.21	0.75	0.28	0.77	0.32	0.35	0.58	0.25
Utah	0.53	0.39	0.44	0.37	0.51	0.71	0.79	0.08
Wasatch	0.68	0.56	0.77	1.00	0.17	0.22	0.48	8.67
REGIONAL TOTALS	0.54	0.48	0.50	0.65	0.55	0.45	0.55	0.44
<u>Southern Region</u>								
Beaver	0.00	0.00	0.00	0.00	0.50	0.00	0.00	0.00
Garfield	0.11	0.00	0.00	0.35	0.67	1.00	0.00	0.00
Iron	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00
Millard	1.00	2.80	1.20	1.00	0.00	0.00	0.15	0.32
Piute	0.00	0.00	3.00	0.64	0.43	0.00	1.50	0.00
Sevier	0.63	0.60	0.75	0.55	0.96	0.61	0.78	0.44
Washington	0.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
Wayne	0.38	1.14	0.00	0.50	0.39	0.44	1.25	0.25
REGIONAL TOTALS	0.45	0.88	0.47	0.50	0.62	0.56	0.70	0.30
<u>Northeastern Region</u>								
Daggett	0.50	1.00	1.96	1.00	0.50	0.14	1.00	0.43
Duchesne	0.41	0.65	0.63	0.54	1.33	0.18	0.23	0.22
Uintah	0.13	1.31	0.89	0.23	0.88	0.14	1.62	0.15
REGIONAL TOTALS	0.28	0.91	1.02	0.40	1.17	0.17	0.79	0.23
<u>Southeastern Region</u>								
Carbon	0.09	1.00	0.46	1.00	0.71	0.21	0.63	0.29
Emery	0.13	0.57	0.94	0.54	0.37	0.45	0.33	0.60
Grand	0.75	0.00	0.00	0.00	2.00	0.00	0.00	0.00
San Juan	1.00	5.00	1.00	1.67	0.00	0.00	1.00	0.00
REGIONAL TOTALS	0.16	0.81	0.83	0.77	0.56	0.30	0.46	0.37
Unknown counties	0.00	0.40	0.42	0.00	0.00	0.00	0.00	3.60
STATE TOTALS	0.37	0.67	0.53	0.61	0.70	0.40	0.60	0.39

Table 13. Percentage distribution of snowshoe hare harvest by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	3.49	3.26	14.80	3.11	10.57	6.62	14.43	10.76
Cache	0.00	10.20	4.86	11.40	5.15	4.78	2.49	4.93
Davis	0.58	0.40	1.21	0.78	0.00	0.37	0.00	0.00
Morgan	0.58	0.00	0.40	1.04	1.08	4.78	0.50	0.00
Rich	5.80	7.75	3.24	7.77	14.09	20.22	5.72	1.35
Summit	26.98	4.89	6.08	4.15	11.11	4.41	6.47	1.35
Weber	5.23	1.22	1.82	1.30	0.27	1.84	0.50	8.52
REGIONAL TOTALS	22.67	27.75	32.45	29.54	42.28	43.02	30.10	26.91
<u>Central Region</u>								
Juab	13.37	0.00	0.81	0.00	2.71	1.47	3.23	0.00
Salt Lake	1.74	0.00	2.43	0.78	0.00	0.74	0.25	0.00
Sanpete	5.80	6.93	10.14	9.33	7.05	11.40	2.49	1.79
Tooele	3.49	4.89	3.24	8.55	3.25	8.83	7.21	8.07
Utah	14.53	8.57	6.89	3.89	4.88	5.52	11.44	2.24
Wasatch	14.53	8.16	8.31	6.22	0.27	3.68	2.99	23.32
REGIONAL TOTALS	53.49	28.57	31.84	28.76	18.16	31.62	27.61	35.43
<u>Southern Region</u>								
Beaver	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00
Garfield	0.58	0.00	0.00	1.81	1.08	1.10	0.00	0.00
Iron	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00
Millard	2.33	5.71	1.21	1.55	0.00	0.00	1.24	4.48
Piute	0.00	0.00	1.21	1.81	0.81	0.00	0.00	0.00
Sevier	2.91	2.44	1.82	2.85	7.05	10.30	5.22	3.14
Washington	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00
Wayne	1.74	3.26	0.00	4.66	3.25	1.47	9.95	1.79
REGIONAL TOTALS	7.56	11.42	4.66	2.69	12.47	12.87	17.91	9.42
<u>Northeastern Region</u>								
Daggett	0.58	0.81	9.53	0.26	0.54	1.10	1.00	5.83
Duchesne	6.98	6.93	6.28	6.74	16.26	6.25	3.73	6.28
Uintah	2.33	8.57	5.07	2.33	3.79	1.84	16.92	4.93
REGIONAL TOTALS	9.88	16.32	20.89	9.33	20.60	9.19	21.64	17.04
<u>Southeastern Region</u>								
Carbon	2.33	5.71	1.21	10.88	2.71	1.47	1.24	1.79
Emery	1.16	6.53	6.49	7.51	2.71	1.84	1.24	1.35
Grand	1.74	0.00	0.00	0.00	1.08	0.00	0.00	0.00
San Juan	1.16	2.04	1.41	1.30	0.00	0.00	0.25	0.00
REGIONAL TOTALS	6.40	14.28	9.12	19.69	6.50	3.31	2.74	3.14
Unknown counties	0.00	1.63	1.01	0.00	0.00	0.00	0.00	8.07
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 14. Percentage distribution of snowshoe hare hunting pressure by region and county, 1986-93.

Region and County	Year							
	1986	1987	1988	1989	1990	1991	1992	1993
<u>Northern Region</u>								
Box Elder	3.46	6.30	10.16	5.64	13.69	7.11	16.67	9.35
Cache	2.81	4.10	12.64	6.27	6.46	6.37	5.71	4.59
Davis	0.43	1.09	1.62	0.31	0.19	4.59	0.00	0.35
Morgan	7.78	0.27	0.32	1.72	0.95	0.89	1.95	0.53
Rich	3.89	4.10	5.18	9.25	12.93	6.22	3.00	1.41
Summit	8.86	6.57	9.08	3.45	7.41	7.41	6.31	3.00
Weber	1.94	2.19	3.89	1.57	0.76	2.96	0.30	3.00
REGIONAL TOTALS	29.16	24.65	42.91	28.21	42.40	35.56	33.93	22.22
<u>Central Region</u>								
Juab	3.46	0.54	2.59	0.00	3.61	1.19	5.11	0.18
Salt Lake	2.16	2.19	2.70	1.25	0.00	1.33	1.95	5.47
Sanpete	7.13	8.21	8.00	8.78	4.56	5.93	3.45	1.06
Tooele	6.05	4.38	6.27	6.74	7.03	10.22	7.51	12.52
Utah	10.15	14.79	8.43	6.43	6.65	3.11	8.71	11.29
Wasatch	7.99	9.86	5.72	3.76	1.14	6.67	3.75	1.06
REGIONAL TOTALS	36.93	40.00	33.72	26.96	23.00	28.45	30.48	31.57
<u>Southern Region</u>								
Beaver	0.00	0.00	1.83	0.63	0.38	0.30	0.00	0.00
Garfield	1.94	0.27	0.10	3.13	1.14	0.44	0.00	1.23
Iron	0.00	2.19	0.00	0.00	0.00	0.00	0.45	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.15	0.75	0.00
Millard	0.86	1.36	0.54	0.94	0.19	0.00	5.11	5.47
Piute	0.00	0.27	0.21	1.72	1.33	0.30	0.30	0.00
Sevier	1.73	2.73	1.29	3.13	5.13	6.82	4.05	2.82
Washington	0.00	0.00	0.10	0.16	0.00	0.00	0.00	0.00
Wayne	1.73	1.91	1.18	5.64	5.89	1.33	4.80	2.82
REGIONAL TOTALS	6.26	8.76	5.29	15.36	14.07	9.33	15.47	12.35
<u>Northeastern Region</u>								
Daggett	0.43	0.54	2.59	0.16	0.76	3.26	0.60	5.29
Duchesne	6.26	7.12	5.29	7.52	8.56	13.78	9.61	11.29
Uintah	6.48	4.38	3.02	6.27	3.04	5.19	6.31	13.05
REGIONAL TOTALS	13.17	12.04	10.91	13.95	12.36	22.22	16.52	29.63
<u>Southeastern Region</u>								
Carbon	9.94	3.83	1.40	6.58	2.66	2.81	1.20	2.47
Emery	3.24	7.67	3.67	8.46	5.13	1.63	2.25	0.88
Grand	0.86	0.00	0.00	0.00	0.38	0.00	0.00	0.00
San Juan	0.43	0.27	0.75	0.47	0.00	0.00	0.15	0.00
REGIONAL TOTALS	14.47	11.78	5.83	5.52	8.17	4.44	3.60	3.35
Unknown counties	0.00	2.73	1.29	0.00	0.00	0.00	0.00	0.88
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 15. Statewide summary of snowshoe hare harvest statistics, 1975-93.

Year	Total Hunters	Total Harvest	Hunter-Days Afield	Hares Per Hunter-Day	Hares Per Hunter
1975	5,961	12,072	19,770	0.61	2.03
1976	8,502	15,500	20,367	0.76	1.82
1977	9,752	21,232	26,535	0.80	2.18
1978	8,205	34,535	30,155	1.15	4.21
1979	6,787	14,641	18,115	0.81	2.16
1980	4,048	7,603	11,140	0.68	1.88
1981	3,554	7,750	12,782	0.61	2.18
1982	4,245	9,257	13,073	0.71	2.18
1983	3,544	6,302	11,088	0.57	1.78
1984	3,796	6,455	10,840	0.60	1.70
1985	3,365	3,429	9,494	0.36	1.02
1986	3,277	3,544	9,541	0.37	1.08
1987	3,702	6,005	8,947	0.67	1.62
1988	4,725	8,231	15,444	0.53	1.74
1989	4,895	8,006	13,233	0.61	1.64
1990	4,095	7,593	10,825	0.70	1.85
1991	3,427	4,731	11,742	0.40	1.38
1992	3,732	7,144	11,836	0.60	1.91
1993	2,755	4,237	10,774	0.39	1.54
Totals					
(1975-93)	92,367	188,267	275,701	--	--
Averages					
(1975-92)	4,978	10,224	14,718	0.64	1.91

A P P E N D I C E S

APPENDIX A

WEATHER CONDITIONS

Weather information used in this report (Tables 1 & 2 and Figures 1 & 2) is from the office of the Utah State Climatologist and N.O.A.A. Climatological Data Periodical.

The 1992-93 winter weather was severe in terms of precipitation and in terms of cold temperature. Above average precipitation fell between December 1992 and March 1993. November 1992 through February 1993 temperatures were below average. Cold temperatures and deep, continuous snowpack persisted through the winter.

In the spring of 1993, March, May and June precipitation was above normal. Temperatures were above normal through March, April and May.

Precipitation continued to be somewhat normal between July and August and dropped below normal in September, November and December. Temperatures remained below normal between June and November.

Table 1. Comparison of 1993 monthly average temperatures (F) to the normal for each weather division and statewide.

Weather Division	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No.1 Western												
Normal	26.0	32.5	39.6	47.3	56.5	66.0	74.4	72.1	62.0	50.1	37.6	27.4
1993	22.0	27.2	42.1	47.1	59.8	62.2	69.0	70.2	61.3	49.2	31.7	28.0
Departure (degrees)	-4.0	-5.3	2.5	-0.2	3.3	-3.8	-5.4	-1.9	-0.7	-0.9	-5.9	0.6
No.2 Dixie												
Normal	38.8	44.1	49.2	56.6	65.7	75.6	81.7	79.8	71.9	60.9	48.0	40.1
1993	40.9	43.0	53.7	58.5	68.2	73.7	79.4	79.6	73.1	60.9	45.0	40.4
Departure (degrees)	2.1	-1.1	4.5	1.9	2.5	-1.9	-2.3	-0.2	1.2	0.0	-3.0	0.3
No.3 North Central												
Normal	25.8	31.3	39.3	47.7	57.0	66.2	74.4	72.3	62.4	50.9	38.3	27.8
1993	23.6	27.0	40.6	47.1	61.0	61.9	67.4	70.0	62.4	50.3	33.1	29.2
Departure (degrees)	-2.2	-4.3	1.3	-0.6	4.0	-4.3	-7.0	-2.3	0.0	-0.6	-5.2	1.4
No.4 South Central												
Normal	26.5	31.6	37.6	45.1	54.0	63.4	70.4	68.2	59.9	49.3	37.3	28.4
1993	27.2	28.9	39.9	45.4	55.6	59.9	66.6	66.8	59.3	47.6	33.1	27.7
Departure (degrees)	0.7	-2.7	2.3	0.3	1.6	-3.5	-3.8	-1.4	-0.6	-1.7	-4.2	-0.7
No.5 Northern Mountains												
Normal	20.9	24.7	31.7	40.6	49.6	58.2	65.6	63.6	54.9	44.7	32.5	22.8
1993	19.4	20.4	33.7	40.1	52.4	55.1	59.4	61.2	54.5	43.8	27.8	23.7
Departure (degrees)	-1.5	-4.3	2.0	-0.5	2.8	-3.1	-6.2	-2.4	-0.4	-0.9	-4.7	0.9
No.6 Uintah Basin												
Normal	16.7	24.0	36.3	46.8	56.2	65.3	72.2	69.8	60.2	48.3	34.0	20.5
1993	15.9	18.9	34.9	46.5	57.7	62.5	67.1	66.9	59.0	47.0	29.2	24.2
Departure (degrees)	-0.8	-5.1	-1.4	-0.3	1.5	-2.8	-5.1	-2.9	-1.2	-1.3	-4.8	3.7
No.7 Southeast												
Normal	26.9	34.2	41.9	50.5	60.0	70.1	76.7	74.2	65.2	53.4	40.2	29.5
1993	30.9	34.5	45.2	51.0	61.3	68.2	74.1	72.6	64.9	51.5	35.7	29.7
Departure (degrees)	4.0	0.3	3.3	0.5	1.3	-1.9	-2.6	-1.6	-0.3	-1.9	-4.5	0.2
STATE AVERAGES												
Normal	25.9	31.8	39.4	47.8	57.0	66.4	73.6	71.4	62.4	51.1	38.3	28.1
1993	25.7	28.6	41.4	48.0	59.4	63.4	69.0	69.6	62.1	50.0	33.7	29.0
Departure (degrees)	-0.2	-3.2	2.1	0.2	2.4	-3.0	-4.6	-1.8	-0.3	-1.0	-4.6	0.9

Table 2. Comparison of 1993 monthly average precipitation to the normal for each weather division and statewide.

Weather Division	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
No.1 Western												
Normal	0.53	0.58	0.85	0.89	0.98	0.71	0.73	0.83	0.79	0.81	0.68	0.58
1993	1.74	1.21	0.95	0.30	0.83	0.86	0.58	0.61	0.35	1.18	0.51	0.21
Departure (inches)	1.21	0.63	0.10	-0.59	-0.15	0.15	-0.15	-0.22	-0.44	0.37	-0.17	-0.37
No.2 Dixie												
Normal	1.32	1.29	1.67	0.90	0.63	0.31	0.90	1.19	0.86	0.78	1.19	1.01
1993	5.86	4.34	1.65	0.22	0.36	0.35	0.00	1.22	0.02	0.95	1.19	0.61
Departure (inches)	4.54	3.05	-0.02	-0.68	-0.27	0.04	-0.90	0.03	-0.84	0.17	0.00	-0.40
No.3 North Central												
Normal	1.34	1.39	1.77	1.94	1.84	1.21	0.85	0.99	1.43	1.64	1.53	1.49
1993	2.81	1.97	2.14	1.62	3.08	2.02	1.64	0.72	0.61	2.45	0.55	0.83
Departure (inches)	1.47	0.58	0.37	-0.32	1.24	0.81	0.79	-0.27	-0.82	0.81	-0.98	-0.66
No.4 South Central												
Normal	0.98	1.01	1.37	1.07	0.98	0.60	1.07	1.38	1.18	1.05	1.07	1.02
1993	3.70	3.12	1.36	0.42	1.16	0.79	0.28	1.31	0.39	1.77	0.93	0.65
Departure (inches)	2.72	2.11	-0.01	-0.65	0.18	0.19	-0.79	-0.07	-0.79	0.72	-0.14	-0.37
No.5 Northern Mountains												
Normal	1.83	1.78	1.93	1.95	1.68	1.19	1.04	1.19	1.52	1.69	1.83	1.92
1993	3.45	2.47	2.15	1.90	3.04	2.07	1.72	1.39	0.43	2.58	1.00	0.67
Departure (inches)	1.62	0.69	0.22	-0.05	1.36	0.88	0.68	0.20	-1.09	0.89	-0.83	-1.25
No.6 Uintah Basin												
Normal	0.48	0.46	0.63	0.73	0.86	0.71	0.71	0.73	0.88	0.96	0.56	0.60
1993	1.17	0.87	1.58	0.74	1.11	0.36	0.24	1.32	0.47	1.78	0.46	0.06
Departure (inches)	0.69	0.41	0.95	0.01	0.25	-0.35	-0.47	0.59	-0.41	0.82	-0.10	-0.54
No.7 Southeast												
Normal	0.68	0.59	0.81	0.66	0.67	0.46	0.97	1.05	0.98	1.13	0.80	0.73
1993	2.86	2.11	0.85	0.48	1.53	0.14	0.06	1.34	0.35	1.99	0.67	0.30
Departure (inches)	2.18	1.52	0.04	-0.18	0.86	-0.32	-0.91	0.29	-0.63	0.86	-0.13	-0.43
STATE AVERAGES												
Normal	1.0	1.0	1.3	1.2	1.1	0.7	0.9	1.1	1.1	1.2	1.1	1.1
1993	3.1	2.3	1.5	0.8	1.6	0.9	0.6	1.1	0.4	1.8	0.8	0.5
Departure (inches)	2.06	1.28	0.24	-0.35	0.50	0.20	-0.25	0.08	-0.72	0.66	-0.34	-0.57

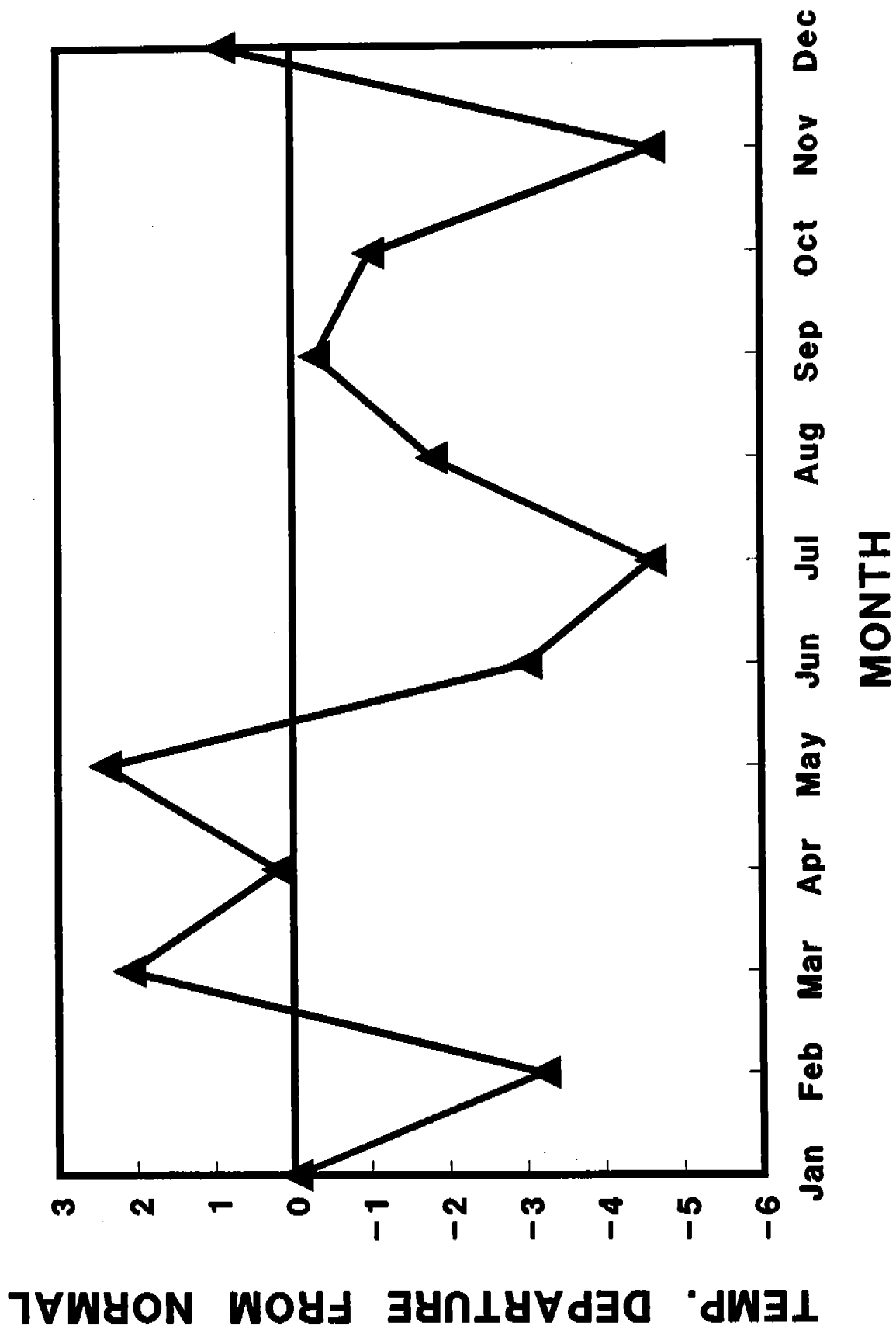


Figure 1. Monthly average temperature departure from normal (degrees F), 1993.

PRECIP. DEPARTURE FROM NORMAL

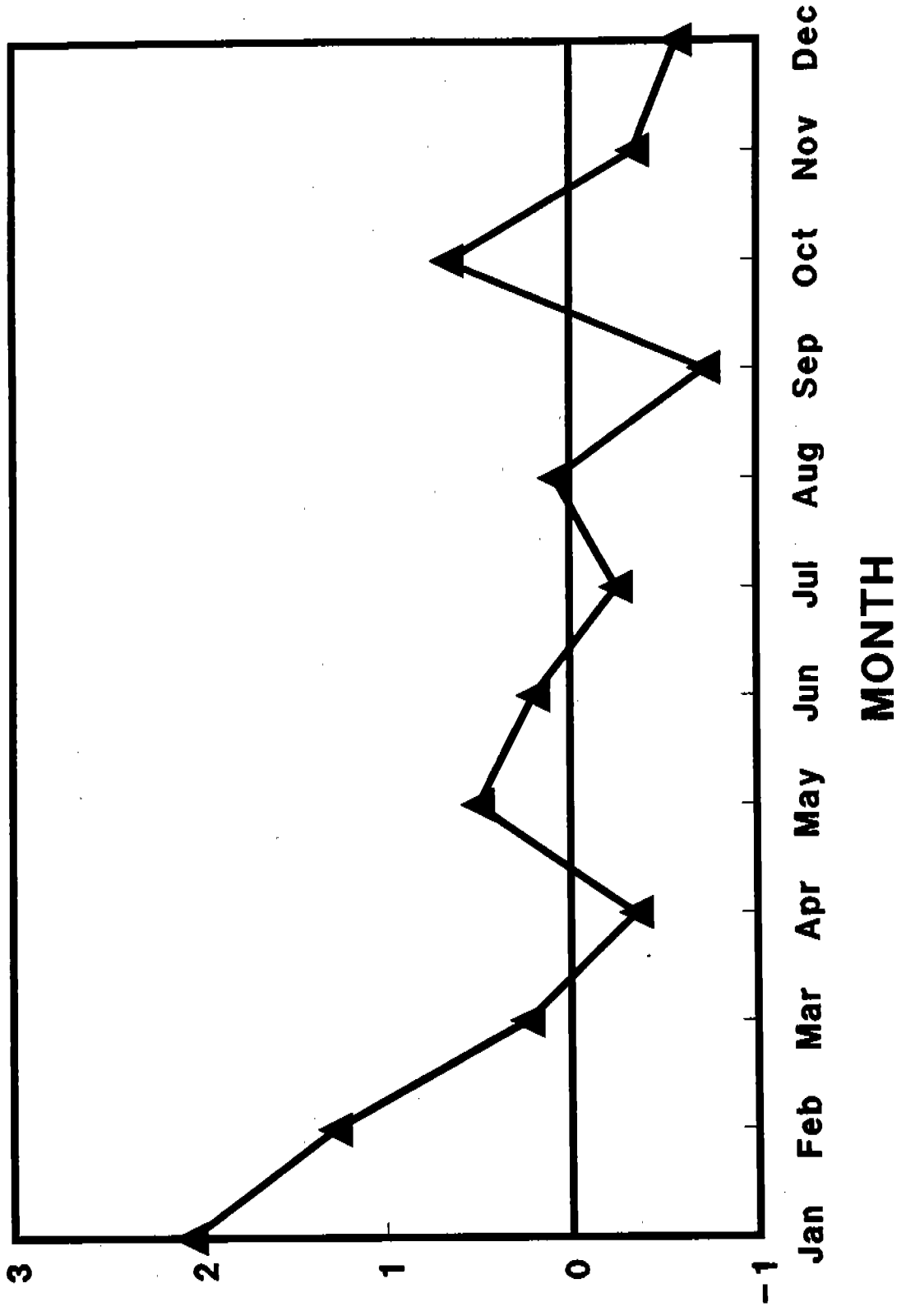


Figure 2. Monthly average precipitation departure from normal (inches), 1993.

APPENDIX B

LICENSE SALES

Small game license sales by type and cost are listed in Table 1. The number of licenses sold for all types decreased slightly in 1993.

The proportion of Utah's population hunting small game is declining (Table 2). In the early 1970's about 10 percent of Utah's population was hunting small game. In 1993, only 4.7 percent of Utah's population hunted small game.

Table 3 identifies revenue generated to the Utah Division of Wildlife Resources from small game license sales. Small game program budgets run about half the revenue generated, with the other half going to support services such as law enforcement, administration, accounting, and field services.

Table 1. Statewide small game license sales information, 1954-93.

Year	Adult Res.		Juv. Res.		Non Res.		Combination License	
	Small Game Issued	Small Game Cost	Small Game Issued	Small Game Cost	Small Game Issued	Small Game Cost	Issued	Cost
1954	12,990	\$3.50	5,170	\$2.00	561	\$15.00	79,574	\$6.00
1955	12,086	\$3.50	5,369	\$2.00	478	\$15.00	79,960	\$6.00
1956	12,102	\$3.50	5,735	\$2.00	524	\$15.00	80,968	\$6.00
1957	12,239	\$3.50	6,192	\$2.00	505	\$15.00	81,271	\$6.00
1958	14,290	\$3.50	6,563	\$2.00	696	\$15.00	85,198	\$6.00
1959	13,421	\$3.50	5,966	\$2.00	669	\$15.00	90,069	\$6.00
1960	12,020	\$3.50	5,022	\$2.00	576	\$15.00	90,085	\$6.00
1961	12,177	\$3.50	6,108	\$2.00	617	\$15.00	88,180	\$6.00
1962	12,953	\$3.50	6,536	\$2.00	607	\$15.00	91,412	\$6.00
1963	13,365	\$3.50	6,319	\$2.00	642	\$15.00	94,768	\$6.00
1964	13,073	\$3.50	6,453	\$2.00	681	\$15.00	98,556	\$6.00
1965	12,913	\$3.50	6,755	\$2.00	716	\$15.00	100,410	\$6.00
1966	13,854	\$3.50	7,477	\$2.00	725	\$15.00	103,849	\$6.00
1967	18,588	\$4.50	12,851	\$2.50	652	\$20.00	86,218	\$10.00
1968	20,647	\$4.50	15,205	\$2.50	703	\$20.00	91,020	\$10.00
1969	20,221	\$4.50	15,567	\$2.50	853	\$20.00	96,117	\$10.00
1970	19,564	\$4.50	15,827	\$2.50	1,009	\$20.00	100,467	\$10.00
1971	20,681	\$4.50	16,044	\$2.50	1,000	\$20.00	102,284	\$10.00
1972	19,796	\$4.50	16,523	\$2.50	1,075	\$20.00	107,414	\$10.00
1973	18,836	\$4.50	16,522	\$2.50	964	\$20.00	155,436	\$10.00
1974	17,434	\$4.50	16,334	\$2.50	974	\$20.00	117,770	\$10.00
1975	17,057	\$4.50	15,869	\$2.50	967	\$20.00	115,362	\$10.00
1976	33,078	\$6.00	16,261	\$3.00	1,141	\$20.00	76,587	\$18.00
1977	36,473	\$6.00	15,795	\$3.00	1,270	\$20.00	74,600	\$18.00
1978	37,082	\$6.00	15,419	\$3.00	1,449	\$20.00	81,227	\$18.00
1979	36,721	\$6.00	14,200	\$3.00	1,575	\$20.00	84,450	\$18.00
1980	30,189	\$8.00	14,042	\$4.00	1,330	\$30.00	100,177	\$23.00
1981	37,804	\$8.00	13,874	\$4.00	1,559	\$30.00	83,486	\$23.00
1982	36,850	\$8.00	14,040	\$4.00	1,637	\$30.00	82,970	\$23.00
1983	39,602	\$8.00	13,814	\$4.00	1,685	\$30.00	73,529	\$23.00
1984	36,070	\$8.00	13,170	\$4.00	1,633	\$30.00	73,081	\$23.00
1985	30,102	\$12.00	12,987	\$6.00	1,500	\$40.00	82,137	\$35.00
1986	29,202	\$12.00	11,921	\$6.00	1,274	\$40.00	67,187	\$35.00
1987	26,781	\$12.00	11,228	\$6.00	1,235	\$40.00	66,715	\$35.00
1988	25,733	\$12.00	9,498	\$6.00	1,428	\$40.00	72,846	\$35.00
1989	25,845	\$12.00	5,769	\$6.00	1,422	\$40.00	74,274	\$35.00
1990	24,527	\$12.00	5,682	\$6.00	1,279	\$40.00	76,292	\$35.00
1991	23,276	\$12.00	5,626	\$6.00	1,212	\$40.00	79,165	\$35.00
1992	21,852	\$12.00	5,431	\$6.00	1,195	\$40.00	78,940	\$35.00
1993	20,899	\$12.00	4,887	\$6.00	1,150	\$40.00	78,030	\$25.00

Table 2. Actual (1971-1993) proportion of Utah population hunting small game.

Year	Utah Population	Resident Small Game Licenses Sold 1	Proportion Hunting Small Game
1971	1,101,000	101,421	9.2
1972	1,135,000	110,691	9.8
1973	1,169,000	115,129	9.8
1974	1,197,000	112,963	9.4
1975	1,234,000	108,636	8.8
1976	1,272,000	85,268	6.7
1977	1,316,000	86,549	6.6
1978	1,364,000	95,637	7.0
1979	1,416,000	100,116	7.1
1980	1,461,037	110,039	7.5
1981	1,524,830	103,041	6.8
1982	1,588,622	99,744	6.3
1983	1,652,415	93,303	5.6
1984	1,716,207	88,084	5.1
1985	1,780,000	94,991	5.3
1986a	1,665,000	82,777	5.0
1987a	1,678,000	85,099	5.1
1988	1,695,000	92,677	5.5
1989a	1,715,000	92,031	5.4
1990a	1,722,850	90,532	5.3
1991a	1,774,241	89,297	5.0
1992a	1,820,453	91,422	5.0
1993a	1,866,000	88,593	4.7

1 Adjusted for waterfowl hunters subtracted from combination licenses,
R.S.G. = Adjusted combination plus juvenile small game plus adult small game.

a Utah Population Estimate Committee Report for July 1
(Office of State Planning Coordinator)

Table 3. Small game license sales and income, 1971-93 (JSG = juvenile small game, RSG = adult resident small game, CMB = combination license, NRSRG = nonresident small game).

Year	License Fees			Number of Licenses Sold			No. Federal Duck Stamps Sold(3)		Total Gross Revenues Attributed to Small Game (\$)				
	JSG	RSG	CMB	JSG(4)	RSG	CMB	NRSRG	Sold(3)	JSG(4)	RSG	CMB(2)	NRSRG	TOTAL(1)
1971	2.50	4.50	10.00	16,044	20,681	102,284	1,000	37,588	20,855	93,064	200,557	20,000	313,676
1972	2.50	4.50	10.00	16,523	19,796	107,414	4,075	33,042	20,653	89,082	230,553	21,500	340,288
1973	2.50	4.50	10.00	16,522	18,836	115,436	964	35,665	20,652	84,762	247,290	19,280	352,704
1974	2.50	4.50	10.00	16,334	17,434	117,770	974	38,575	20,417	78,453	245,504	19,480	344,374
1975	2.50	4.50	10.00	15,869	17,057	115,362	967	39,652	19,836	76,756	234,701	19,340	330,993
1976	3.00	6.00	18.00	16,261	33,078	76,587	1,141	40,658	24,391	198,468	184,675	22,820	407,534
1977	3.00	6.00	18.00	15,795	36,473	74,690	1,270	40,319	23,692	218,838	176,204	25,400	418,734
1978	3.00	6.00	18.00	15,419	37,082	81,227	1,449	38,091	23,128	222,492	221,719	28,980	467,339
1979	3.00	6.00	18.00	14,200	36,721	84,450	1,575	35,255	21,300	220,326	252,862	31,500	494,488
1980	4.00	8.00	23.00	14,042	30,189	100,177	1,330	34,369	28,084	241,512	425,120	39,900	694,716
1981	4.00	8.00	23.00	13,874	37,804	83,486	1,559	32,123	27,748	302,432	331,805	46,770	661,985
1982	4.00	8.00	23.00	14,040	36,850	82,970	1,637	34,116	28,080	294,800	315,597	49,110	638,477
1983	4.00	8.00	23.00	13,814	39,602	73,529	1,685	33,642	25,620	305,249	257,670	50,134	588,539
1984	4.00	8.00	23.00	13,170	36,070	73,081	1,633	34,237	26,340	288,560	250,544	48,990	565,444
1985	6.00	12.00	35.00	12,987	30,102	82,137	1,500	30,235	38,961	361,224	484,246	60,000	884,431
1986	6.00	12.00	35.00	11,946	39,567	67,435	1,274	25,533	35,838	354,804	395,973	50,960	786,615
1987	6.00	12.00	35.00	11,228	26,781	66,715	1,235	19,625	33,684	321,372	439,350	49,400	794,406
1988	6.00	12.00	35.00	9,498	25,733	72,846	1,428	15,400	28,494	308,796	535,971	57,120	873,261
1989	6.00	12.00	35.00	5,769	25,845	74,274	1,422	13,857	17,307	310,140	563,691	56,880	891,138
1990	6.00	12.00	35.00	5,682	24,527	76,292	1,279	15,969	17,046	294,324	543,986	51,160	855,356
1991	6.00	12.00	35.00	5,626	23,276	79,165	1,212	18,770	16,878	279,312	563,485	48,480	859,675
1992	6.00	12.00	35.00	5,431	21,852	78,940	1,195	14,801	16,293	262,224	598,417	47,800	924,734
1993	6.00	12.00	25.00	4,887	20,899	78,030	1,150	15,223	14,661	250,788	585,989	46,000	897,438

1 Value does not include cougar, bear, band-tailed pigeon and wild turkey permits, Upland Game Habitat Stamp fees or commercial hunting area licenses. It does not include NRSRG revenue--this is assumed to be primarily non-resident bear and cougar hunters.

2 Combination license values are based on the assumption that all waterfowl hunters purchased only combination licenses. They may fish and hunt big game but they do not hunt any other small game. Therefore, duck stamp sales are subtracted from combination license sales when projecting revenue generated. The proportion of the combination license fee attributed to small game equals the resident small game license fee divided by the resident fishing license, plus the resident big game license fee, plus the resident small game license fee or \$9.33 for 1993.

3 Total Federal duck stamps sold does not include those sold during the second quarter, April-June, because persons purchasing stamps during this quarter tend not to be hunters.

4 Half of the juvenile small game license sales were attributed to waterfowl hunters. Federal duck stamps are not required of juveniles less than 16 years of age.

APPENDIX C: Regional and statewide summary of effort expended on upland game summer surveys, 1971-93.

Generally hours spent and miles driven on upland game surveys in Utah have declined since 1971. This is the result of competing uses of time for biologists and conservation officers. In addition, the restriction to a 40 hour work week by the Federal Fair Labor and Standards Act has further eroded survey effort. When effort and results have reached a lower critical sample size, surveys have been eliminated.

Table 1. Regional and statewide summary of effort expended on upland game summer inventory, 1971-93.

Species	REGION												STATE TOTALS																																											
	Northern				Central				Southern				Northeastern				Southeastern				Miles			Hours																																
	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours																																
Phasant	507	--	878	--	796	--	588	--	346	--	3,115	--	3,016	--	2,471	--	2,971	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29
	1971	507	878	--	796	--	588	--	346	--	3,115	--	3,016	--	2,471	--	2,971	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29
	1972	469	963	--	752	--	535	--	297	--	3,016	--	2,471	--	2,971	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29		
	1973	322	691	--	740	--	488	--	230	--	2,471	--	2,971	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29				
	1974	479	819	--	848	--	508	--	317	--	2,971	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29						
	1975	490	846	--	993	--	515	--	393	--	3,237	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29								
	1976	476	822	--	773	--	434	--	400	--	2,905	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29										
	1977	484	731	--	790	--	554	--	343	--	2,902	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29												
	1978	479	642	--	654	--	512	--	588	--	2,875	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29														
	1979	438	642	--	721	--	562	--	209	--	2,572	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																
	1980	358	672	--	750	--	546	--	270	--	2,650	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																		
	1981	459	525	--	801	--	535	--	330	--	2,596	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																				
	1982	437	639	--	583	--	477	--	332	--	2,468	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																						
	1983	260	442	--	780	--	426	--	330	--	2,238	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																								
	1984	444	359	--	473	--	463	--	166	--	1,905	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																										
	1985	383	303	--	650	--	492	--	180	--	2,008	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																												
	1986	455	617	--	669	--	520	--	270	--	2,531	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																														
	1987	432	518	--	574	--	546	--	90	--	2,160	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																																
	1988	334	436	--	604	--	469	--	90	--	1,933	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																																		
	1989	499	427	--	45	--	403	--	90	--	1,464	--	1,454	--	1,566	--	1,615	--	294	29																																				
	1990	518	509	--	97	--	240	--	90	--	1,454	--	1,566	--	1,615	--	294	29																																						
	1991	485	496	--	120	--	375	--	90	--	1,566	--	1,615	--	294	29																																								
	1992	413	455	--	0	--	657	--	90	--	1,615	--	294	29																																										
	1993	165	20	2	109	15	4	4	4	4	294	29																																												
Chukar	182	82	929	130	1,103	100	636	50	496	105	3,346	467																																												
	1972	712	91	1,423	131	950	37	1,012	69	984	386																																													
	1973	1,063	119	1,494	167	72	705	48	702	68	4,036	412																																												
	1974	125	31	1,591	107	564	43	440	30	1,115	278																																													
	1975	188	30	808	85	892	41	908	88	786	299																																													
	1976	875	75	964	110	465	32	727	67	687	350																																													
	1977	405	50	1,198	120	601	37	600	71	429	322																																													
	1978	359	28	459	42	135	14	315	23	536	159																																													
	1979	546	54	793	76	415	22	293	23	267	189																																													
	1980	283	68	1,668	124	235	12	0	0	53	214																																													
	1981	330	56	591	49	147	11	245	21	260	169																																													
	1982	473	34	571	56	475	35	260	37	101	171																																													
	1983	17	15	190	17	20	2	488	44	103	85																																													
	1984	654	81	303	32	--	--	--	--	118	129																																													
	1985	236	73	453	36	--	--	--	--	174	121																																													
	1986	394	65	432	37	--	--	--	--	--	116																																													
	1987	813	119	398	36	0	3	305	32	175	213																																													
	1988	379	35	457	49	60	7	--	--	180	105																																													
	1989	105	17	505	30	11	8	--	--	144	67																																													
	1990	--	21	1,190	77	--	--	85	8	235	126																																													
	1991	0	0	311	18	0	0	0	0	225	29																																													
	1992	178	27	270	12	0	0	0	0	216	63																																													
	1993	--	--	--	--	--	--	--	--	300	22																																													

Table 1 (continued)

Species	REGION												STATE TOTALS				
	Northern			Central			Southern			Northeastern			Southeastern			Miles	Hours
	Miles	Hours	Hours	Miles	Hours	Hours	Miles	Hours	Hours	Miles	Hours	Hours	Miles	Hours	Hours	Miles	Hours
Sage Grouse																	
1971	1,743	296	909	145	1,423	98	1,465	144	1,089	128	6,629	811					
1972	1,628	323	1,187	143	751	144	2,125	170	1,280	141	6,971	921					
1973	3,146	353	927	147	1,171	116	1,952	238	496	41	7,692	895					
1974	2,026	321	1,551	115	1,881	193	2,964	248	887	124	9,309	1,001					
1975	1,254	249	963	123	714	226	1,868	236	1,098	131	5,897	965					
1976	1,965	281	426	121	379	183	1,881	227	1,222	161	5,873	973					
1977	1,966	305	1,370	133	465	157	1,995	215	928	116	6,724	926					
1978	1,408	267	541	124	490	152	1,616	226	879	97	4,934	866					
1979	1,051	150	700	132	563	143	1,719	203	279	20	4,312	648					
1980	1,003	218	806	150	518	94	1,471	184	278	60	4,076	706					
1981	619	194	691	99	285	57	771	163	377	39	2,743	552					
1982	1,669	169	762	92	454	83	862	116	--	--	3,747	460					
1983	610	158	720	164	284	51	992	125	108	10	2,714	508					
1984	1,411	278	283	82	289	54	530	95	151	17	2,664	526					
1985	2,164	169	481	74	410	45	666	84	106	9	3,827	381					
1986	1,024	197	281	39	169	43	948	94	146	14	2,568	387					
1987	1,939	205	172	37	286	50	1,114	124	195	18	3,706	434					
1988	2,092	177	678	108	315	66	690	91	--	--	3,775	442					
1989	465	108	360	56	46	19	557	61	167	24	1,595	268					
1990	175	73	444	89	90	42	244	30	70	7	1,023	241					
1991	554	210	270	21	30	21	60	21	86	13	1,000	286					
1992	--	126	96	44	265	50	193	18	204	23	758	261					
1993	--	82	36	32	--	--	65	3	130	23	231	140					
Forest Grouse																	
1971	1,201	240	785	173	796	249	794	77	440	89	4,016	828					
1972	1,370	212	804	103	214	260	1,346	140	351	82	4,085	797					
1973	627	127	917	105	296	429	949	147	761	72	3,550	880					
1974	967	152	924	157	157	461	1,090	99	1,574	133	4,712	1,002					
1975	1,194	199	1,287	160	775	629	1,474	136	1,476	135	6,206	1,259					
1976	1,516	351	1,503	216	427	271	1,108	140	1,127	134	5,681	1,112					
1977	737	132	1,317	162	610	286	1,040	135	1,079	128	4,783	843					
1978	1,300	297	1,171	129	432	219	1,083	147	626	114	4,612	906					
1979	746	344	1,312	177	714	275	729	107	435	42	3,936	945					
1980	577	201	1,260	158	160	230	502	74	266	39	2,765	702					
1981	688	147	958	147	575	295	835	120	184	29	3,240	738					
1982	506	74	1,488	157	--	354	742	111	--	--	2,736	696					
1983	1,049	218	1,180	93	459	80	636	93	--	20	3,324	504					
1984	615	157	364	30	230	78	--	--	--	40	1,209	305					
1985	858	202	436	52	564	90	--	--	--	40	1,858	384					
1986	997	127	380	41	254	51	412	61	--	--	2,043	280					
1987	1,148	147	305	77	200	65	438	58	--	--	2,091	347					
1988	1,118	144	55	6	160	53	558	71	--	--	1,891	274					
1989	795	109	635	69	45	3	573	75	286	33	2,334	289					
1990	171	150	701	113	30	3	185	91	--	2	1,087	357					
1991	--	178	536	54	30	2	0	0	--	2	566	236					
1992	362	104	167	52	0	0	10	5	105	20	644	181					
1993	290	34	--	28	--	--	41	3	243	45	574	110					

Table 1 (continued)

Species	REGION												STATE TOTALS				
	Northern			Central			Southern			Northeastern			Southeastern			Miles	Hours
	Miles	Hours		Miles	Hours		Miles	Hours		Miles	Hours		Miles	Hours			
Quail																	
1971	192	24	289	40	344	28	587	49	140	13	1,552	154					
1972	46	9	342	30	575	39	870	63	120	8	1,953	149					
1973	80	10	264	35	32	8	538	38	25	17	939	108					
1974	24	4	43	27	853	66	227	28	214	21	1,361	146					
1975	27	8	107	23	841	64	594	43	230	12	1,799	150					
1976	81	10	206	29	503	62	597	44	75	10	1,462	155					
1977	22	4	351	39	445	42	341	26	60	16	1,219	127					
1978	--	--	239	18	563	61	541	46	88	17	1,431	142					
1979	68	11	95	7	478	41	346	32	15	6	1,002	97					
1980	36	9	265	23	240	36	410	34	0	0	951	102					
1981	58	11	180	12	329	43	366	31	0	3	933	100					
1982	0	0	151	14	304	44	475	44	0	0	930	102					
1983	5	9	93	9	562	61	295	26	0	0	955	105					
1984	--	--	82	8	266	40	--	--	--	--	348	48					
1985	--	2	82	5	252	33	--	--	--	--	334	40					
1986	--	--	10	2	306	28	--	--	--	--	316	30					
1987	--	1	20	2	257	29	--	--	--	--	277	32					
1988	0	5	--	--	277	37	96	12	--	--	373	54					
1989	--	--	--	--	145	10	72	7	--	--	217	17					
1990	--	--	--	--	97	8	--	3	--	--	97	11					
1991	0	0	--	1	0	0	59	4	0	0	59	5					
1992	0	0	0	0	0	0	--	1	20	2	20	3					
1993	--	--	--	--	--	8	35	5	--	--	35	13					
Hungarian Partridge																	
1971	676	85	104	18	--	--	--	--	--	--	780	103					
1972	1,255	126	--	--	--	--	--	--	--	--	21	126					
1973	1,643	156	12	4	--	--	--	--	--	--	1,655	160					
1974	1,035	176	14	2	--	--	--	--	--	--	1,049	178					
1975	344	64	0	0	--	--	--	--	--	--	344	64					
1976	940	83	113	21	--	--	--	--	--	--	1,053	104					
1977	1,145	156	125	5	--	--	--	--	--	--	1,270	161					
1978	1,065	90	197	17	--	--	--	--	--	--	1,262	107					
1979	440	27	37	3	--	--	--	--	--	--	477	30					
1980	250	55	50	6	--	--	--	--	--	--	300	61					
1981	270	23	65	3	--	--	--	--	--	--	335	26					
1982	324	39	--	--	--	--	--	--	--	--	324	39					
1983	0	60	--	--	--	--	--	--	--	--	0	60					
1984	815	221	--	--	--	--	--	--	--	--	815	221					
1985	114	38	--	--	--	--	--	--	--	--	114	38					
1986	213	44	--	--	--	--	--	--	--	--	213	44					
1987	300	40	--	--	--	--	--	--	--	--	300	40					
1988	316	30	10	1	--	--	--	--	--	--	326	31					
1989	0	0	--	--	--	--	--	--	--	--	0	0					
1990	393	30	--	--	--	--	--	--	--	--	393	30					
1991	--	41	0	0	--	--	--	--	--	--	0	41					
1992	--	83	40	2	--	--	--	--	--	--	40	85					
1993	--	42	--	--	--	--	--	0.2	--	--	--	42					

Table 1 (continued)

Species	REGION												STATE TOTALS						
	Northern			Central			Southern			Northeastern			Southeastern			Miles	Hours		
	Miles	Hours		Miles	Hours		Miles	Hours		Miles	Hours		Miles	Hours		Miles	Hours		
Wild Turkey																			
1971	--	--	--	726	73	--	--	--	--	215	28	941	101						
1972	--	--	--	73	62	--	--	--	--	290	54	363	116						
1973	--	--	--	143	11	--	--	--	--	--	--	143	11						
1974	--	--	--	0	0	--	--	--	--	799	64	799	64						
1975	--	--	--	215	18	--	--	--	--	792	100	1,807	118						
1976	--	--	--	125	16	--	--	--	--	362	45	487	61						
1977	--	--	--	193	29	--	--	--	--	421	58	614	87						
1978	--	--	--	--	--	--	--	--	--	204	55	204	55						
1979	--	--	--	--	--	--	--	--	--	190	14	190	14						
1980	--	--	--	--	--	--	--	--	--	--	--	--	--						
1981	--	--	--	--	--	--	--	--	--	--	--	--	--						
1982	--	--	--	--	--	--	--	--	--	--	--	--	--						
1983	--	--	--	--	--	--	--	--	--	--	--	--	--						
1984	--	--	--	--	--	--	--	--	--	--	--	--	--						
1985	--	--	--	--	--	--	--	--	--	--	--	--	--						
1986	--	--	--	--	--	--	--	--	--	41	15	41	15						
1987	--	--	--	--	--	--	--	--	--	--	--	--	--						
1988	--	--	--	--	--	--	--	--	--	--	--	--	--						
1989	--	--	--	--	--	--	--	--	--	--	--	--	--						
1990	--	--	--	--	--	--	--	--	--	--	--	--	--						
1991	--	--	--	155	68	--	--	--	--	150	15	305	83						
1992	--	--	--	100	16	--	--	--	--	35	6	135	22						
1993	--	--	--	--	--	--	57	3	--	117	9	174	12						
Cottontail Rabbit																			
1971	338	--	--	1,054	--	--	410	--	--	570	--	2,702	--						
1972	510	--	--	939	--	--	360	--	--	555	--	2,643	--						
1973	337	--	--	879	--	--	270	--	--	270	--	1,998	--						
1974	270	--	--	1,040	--	--	370	--	--	542	--	2,402	--						
1975	330	--	--	1,237	--	--	340	--	--	712	--	2,850	--						
1976	510	--	--	1,382	--	--	300	--	--	636	--	3,088	--						
1977	360	--	--	1,329	--	--	400	--	--	556	--	2,907	--						
1978	382	--	--	1,038	--	--	300	--	--	761	--	2,745	--						
1979	270	--	--	903	--	--	400	--	--	580	--	2,423	--						
1980	90	--	--	655	--	--	359	--	--	540	--	1,909	--						
1981	270	--	--	903	--	--	400	--	--	580	--	2,423	--						
1982	240	--	--	722	--	--	298	--	--	602	--	2,102	--						
1983	90	--	--	822	--	--	340	--	--	590	--	1,932	--						
1984	--	--	--	177	--	--	356	--	--	340	--	196	--						
1985	--	--	--	175	--	--	631	--	--	400	--	450	--						
1986	240	--	--	534	--	--	358	--	--	330	--	1,610	--						
1987	150	--	--	669	--	--	373	--	--	240	--	1,552	--						
1988	--	--	--	129	--	--	604	--	--	379	--	360	--						
1989	90	--	--	90	--	--	266	--	--	360	--	872	--						
1990	150	--	--	97	--	--	210	--	--	360	--	879	--						
1991	90	--	--	--	--	--	105	--	--	330	--	558	--						
1992	60	--	--	90	--	--	204	--	--	360	--	857	--						
1993	--	--	--	--	--	--	207	--	--	360	--	750	--						

APPENDIX D: Season dates, bag limits and areas open by upland game species, 1993.

Species	Season Dates	Daily Bag Possession		Areas Open
		Limit	Limit	
Pheasant	Nov. 6-Nov.21	2 cocks	4 cocks	Statewide.
	Nov. 6-Dec.6	2 cocks	4 cocks	All state and federal lands (including private lands leased by the Division subject to restrictions and closures imposed by administering agencies) in Carbon, Duchesne, Emery, Grand, Juab, Millard, San Juan, Sanpete, Sevier, Tooele and Uintah counties. The South Fairfield Posted Hunting Unit as posted and marked.
Mourning Dove	Sept. 1-30	10	20	Statewide (except lands closed under CLOSED AREAS).
Band-Tailed Pigeon	Sept. 1-30	5	10	Beaver, Garfield, Grand, Iron, Kane, Millard, Piute, San Juan, Sanpete, Sevier, Utah, Washington and Wayne counties.
Chukar	Sept.11-Nov.30	5	10	Cache, Daggett, Morgan, Rich, Sanpete and Weber counties; Davis County except Antelope Island; those parts of Box Elder, Juab, Millard, Salt Lake, and Utah counties east of I-15; that part of Sevier County north of I-70; and all of Summit County except the Henefer-Echo Wildlife Management Area as posted and marked.
	Sept.11, 1993- Jan.31, 1994	5	10	Beaver, Carbon, Emery, Garfield, Grand, Iron, Kane, Piute, San Juan, Tooele, Uintah, Washington and Wayne counties; those parts of Box Elder, Juab, Millard, Salt Lake, and Utah counties lying west of I-15; that part of Sevier County south of I-70.
Sage Grouse	Sept. 11-19	2	4	Beaver, Carbon, Daggett, Grand, Iron, Kane, Piute, Rich and Uintah, and Wayne counties; that part of Sevier County south and west of I-70 and US-89; beginning near Soldier Summit at the Utah-Wasatch county line;

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Areas Open
				then south and east along this county line to Reservation Ridge; east along this ridge to Argyle Creek; east along this creek to the Duchesne-Carbon county line; west along this county line to the drainage divide between the Spanish Fork and Price rivers; north along this drainage divide to the Utah-Wasatch county line near Soldier Summit; that part of Duchesne County north and east of the Duchesne River; that part of Box Elder County west of I-15.
Forest Grouse	Sept 11-Nov 30	4 (aggregate)	8 (aggregate)	Statewide.
Quail	Nov.6-Nov.19	5	10	Beaver, Box Elder, Carbon, Daggett, Davis, Duchesne, Emery, Garfield, Grand, Iron, Juab, Kane, Millard, Piute, Salt Lake, San Juan, Sevier, Uintah, Utah, Wayne and Weber counties.
	Nov 6-Dec. 31	5	10	Washington County.
Hungarian Partridge	Sept 11-Nov 30	5	10	Cache, Davis, Morgan, Rich and Weber counties; those portions of Box Elder and Juab counties east of I-15; and all of Summit County except the Henefer-Echo Wildlife Management Area as posted and marked.
	Sept 11, 1993 Jan. 31, 1994	5	10	Tooele County; and that part of Box Elder and Juab counties west of I-15.
Wild Turkey Rio Grande Hunt #101	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Beaver - Boundary begins at the junction of I-70 and Highway SR-89; then southerly on SR-89 to the Garfield-Piute county line, then westerly along this county line to the Beaver-Iron county line, then westerly along this county line to I-15;

APPENDIX D (continued)

Species	Season Dates	Daily Bag	Possession	Areas Open
		Limit	Limit	
				northerly on I-15 to I-70; easterly on I-70 to SR-89.
Hunt #102	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Duchesne-Uintah - All of Duchesne and Uintah counties.
Hunt #103	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Emery - All of Emery County.
Hunt #104	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Grand County - Boundary begins at the junction of I-70 and highway SR-128; then southerly on SR-128 to the Colorado River; then northerly on the Colorado River to the confluence of the Dolores River; then easterly on the Dolores River to the Utah-Colorado line; then northerly on this line to I-70; then westerly on I- 70 to SR-128.
Hunt #105	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Milford - Boundary begins at Milford, Utah; then northerly on SR-257 to Negro Mag Wash; then east on Negro Mag Wash to Cunningham Wash; then south on Cunningham Wash to Wildcat Creek; then south on Wildcat Creek to Indian Creek; then south on Indian Creek to SR-21; then west and north on SR- 21 to Milford.
Hunt #106	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Morgan-Summit - All of Morgan and Summit counties.
Hunt #107	April 9- May 22, 1994	Season Limit 1 Male Turkey 25 Permits		Pine Valley - Boundary begins at the junction of I-15 and SR-56; then westerly on SR-56 to SR- 18; then southerly on SR- 18 to I-15; then northerly on I-15 to SR-56.
Hunt #108	April 9- May 22, 1994	Season Limit 1 Male Turkey 20 Permits		Utah County - All of Utah County.
Hunt #109	April 9- May 22, 1994	Season Limit 1 Male Turkey 5 Permits		Weber County - All of Weber County.

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Areas Open
Merriam's Hunt #201 (early)	April 30- May 11, 1994	Season Limit 1 Male Turkey 75 Permits		Boulder Mountain - Boundary begins at the junction of SR-62 and SR- 89 near Kingston, Utah; then southerly on SR-89 to the Pink Cliffs road between Glendate and Cannonville; then easterly on the Pink Cliffs Road to SR-12; then easterly and northeasterly on SR-12 to the Burr Trial road; then easterly on the Burr Trial road to the Capitol Reef National Park boundary; then northerly along the park boundary to SR-24; then westerly on SR-24 to SR-62; then southerly on SR-62 to SR-89.
Hunt #202 (late)	May 14- May 31, 1994	Season Limit 1 Male Turkey 75 Permits		Boulder Mountain - Same as Hunt #201.
Hunt #203 *	April 30- May 22, 1994	Season Limit 1 Male Turkey 35 Permits		Kolob - Area includes everything within the following description except for Zion National Park land; boundary begins at the junction of I-15 and SR-17; then easterly on SR-17 to SR-9 to the Zion National Park's east boundary; then northerly along the east boundary to the park's north boundary; then westerly along the park's north boundary to Deep Creek; then northerly on Deep Creek to Crystal Creek to the Cedar Mountain Road; then northerly on the Cedar Mountain road to I-15 then southerly on I-15 to SR- 17.
Hunt #204 (early)	April 30- May 11, 1994	Season Limit 1 Male Turkey 75 Permits		Zion - Boundary begins at the junction of I-15 and SR-20; then southerly on I-15 to the Cedar Mountain Road; then southerly on the Cedar Mountain road to Crystal Creek; then southerly on Crystal Creek to Deep Creek; then southerly on Deep Creek to the Zion

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Areas Open
				National Park boundary, then easterly on the park boundary to the Washington-Kane County line; then southerly on the county line to SR-9; then easterly on SR-9 to SR-89; then northerly on SR-89 to SR-20; then westerly on SR-20 to I-15.
Hunt #205 (late)	May 14- May 31, 1994		Season Limit 1 Male Turkey 75 Permits	Zion - Same as Hunt #204
*Hunts comprised of all or largely private property. Hunters should obtain written permission to access property from the landowner before applying for the hunt.				
White-Tailed Ptarmigan	Sept. 11-Oct. 12	4	8	Daggett, Duchesne, Summit and Uintah counties.
Cottontail Rabbit	Sept. 11, 1993- Feb. 28, 1994	10	20	Statewide.
Snowshoe Hare	Sept. 11, 1993- Feb. 28, 1994	5	10	Statewide.

APPENDIX E. Summary of upland game harvest questionnaire returns, 1962-93.

Year	Questionnaires	Total		Useable		Licensees Who
	Mailed	Returns	Percent	Returns	Percent	Did Not Hunt
1962	10,068	4,122	40.9	3,433	34.1	22.0
1963	11,058	5,062	45.8	4,325	39.1	21.0
1964	10,718	4,840	45.2	4,180	39.0	23.0
1965	11,917	6,232	52.3	--	0.0	34.0
1966	13,131	5,734	43.7	5,734	43.7	34.6
1967	12,012	5,764	48.0	5,764	48.0	25.1
1968	14,068	6,138	43.6	6,138	43.6	25.6
1969	15,036	6,429	42.8	6,429	42.8	28.0
1970	14,730	6,639	45.1	6,639	45.1	38.8
1971	15,149	--	43.2	--	0.0	--
1972	15,272	--	--	6,399	41.9	--
1973	17,572	--	--	7,999	45.5	--
1974	27,379	9,157	33.4	8,027	29.3	--
1975	26,657	10,880	40.8	9,132	34.3	--
1976	21,250	7,889	37.1	6,226	29.3	--
1977	20,984	9,329	44.5	8,099	38.6	--
1978	24,733	7,575	30.6	6,529	26.4	--
1979	27,616	10,498	38.0	9,274	33.6	26.4
1980	27,952	9,857	35.3	8,496	30.4	33.1
1981	13,925	7,941	57.0	6,367	45.7	31.4
1982	22,609	10,167	45.0	8,734	38.6	27.0
1983	23,430	10,324	44.1	9,497	40.5	28.7
1984	12,026	6,455	53.7	6,324	52.6	31.1
1985	10,772	5,904	54.8	5,843	54.2	35.2
1986	11,103	5,329	48.0	5,256	47.3	34.2
1987	10,022	4,294	42.8	4,272	42.6	30.1
1988	15,350	6,650	43.3	6,527	42.5	35.6
1989	12,894	5,135	39.8	5,105	39.6	36.7
1990	12,236	5,264	43.0	5,175	42.3	39.1
1991	15,054	6,419	42.6	6,212	41.3	42.7
1992	16,472	6,207	37.7	5,977	36.3	45.0
1993	16,534	6,293	38.1	5,442	32.9	42.6