UTAH UPLAND GAME

ANNUAL REPORT 1991

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

1991

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Annual Performance Report for Federal Aid Project W-65-R-39 Job A-4

Utah Department of Natural Resources

DIVISION OF WILDLIFE RESOURCES

An Equal Opportunity Employer

Timothy H. Provan
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 Project Title: Statewide Wildlife Management Inventory

Project No.: W-65-R-39

Job Title: Statewide Upland Game
Job No.: A-4

Period Covered: October 1, 1990 to September 30, 1991

Abstract: This report includes upland game inventory and harvest data collected during 1990-91. 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 1991 are compared to 1990 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, 1990 through February 10, 1991, 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 1990 for comparable grounds were determined on a county basis.

The Gambel's quail long period waterhole counts were completed in July and August. Limited valley 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 (1991) resident small game license file and 1991 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, 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 Information Systems Services Subsection. General upland game questionnaires as well as band-tailed pigeon, wild turkey and ptarmigan questionnaires were analyzed by Game Management 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 hunted.

This is the twenty-first 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, game 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 in Utah. 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 1991, a total of 61,922 Utah sportsmen spent 435,726 days afield in pursuit of various upland game species (Table 1). The harvest of upland game totaled 452,664 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. The regulations for 1991 upland game hunting seasons are shown in Appendix D.

Table 1. Summary of harvest statistics from the general mail questionnaire for 1991.

Species	Hunters Afield	Total Harvest	Hunter Days	Bag Per Hunter-Day	Bag/Hunter For Season
Pheasant	42,813	72,612	150,096	0.48	1.70
Mourning dove	22,632	178,853	78,405	2.28	7.90
Chukar partridge	10,577	24,355	34,010	0.72	2.30
Sage grouse	8,018	12,542	18,596	0.67	1.56
Forest grouse	14,421	34,897	42,517	0.82	2.42
Quail	2,644	5,775	7,393	0.78	2.18
Hungarian partridge	2,662	7,376	8,367	0.88	2.77
Wild turkey	532	59	1,792	0.03	0.11
Band-tailed pigeon	15	31	20	1.50	2.10
Sharp-tailed grouse	--	--	--	--	--
White-tailed ptarmigan	13	26	16	1.63	2.00
Cottontail rabbit	21,137	111,407	82,772	1.35	5.27
Snowshoe hare	3,427	4,731	11,742	0.40	1.38
TOTAL	--	452,664	435,726	--	--

Total hunters afield for all species of upland game = 61,922

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 15,054 upland game questionnaires, a 13.93 percent sample, were mailed. Of the total, 661 (4.39%) questionnaires were undeliverable. Of the 14,393 questionnaires delivered, 6,212 (43.16%) useable upland game questionnaires were returned. Of those, 2,655 purchased a license but did not hunt upland game. By dividing the total of 108,067 eligible licensees by the usable returns (6,212), a projection factor of 17.396491 is derived.

The 1991 hunter questionnaire sample size increased from 1990, 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 2. Number and percent of total upland game hunters afield who reported hunting each species during 1984-91.

	Number of Hunters								Percent of Total							
Species	1984	1985	1986	1987	1988	1989	1990	1991	1984	1985	1986	1987	1988	1989	1990	1991
Pheasant	76,840	69,889	59,987	57,118	54,514	50,382	47,025	42,813	86.90	86.20	84.20	83.80	77.70	75.20	72.50	69.14
Mourning Dove	30,573	28,183	26,583	22,553	22,457	21,696	22,700	22,632	11.10	9.80	13.20	16.50	16.00	16.30	17.30	36.55
Chukar	9,846	7,930	9,397	11,276	11,237	10,910	11,195	10,577	34.60	34.70	37.30	33.00	32.00	32.40	35.00	17.08
Sage Grouse	8,283	7,586	7,233	7,060	8,499	9,002	9,014	8,018	9.40	9.40	10.20	10.40	12.10	13.40	13.90	12.95
Forest Grouse	11,511	12,645	12,117	14,831	16,947	16,988	14,591	14,421	13.00	15.60	17.00	21.80	24.20	25.40	22.50	23.29
Quail	3,654	3,065	2,432	2,549	2,671	3,111	2,614	2,644	4.10	3.80	3.40	3.70	3.80	4.60	4.00	4.27
Hungarian Partridge	1,523	1,157	1,257	2,010	2,471	2,136	2,305	2,662	1.70	1.40	1.80	2.90	3.50	3.20	3.60	4.30
Wild Turkey**	255*	270	335	347	421	477	531	532	0.30	0.30	0.50	0.50	0.60	0.70	0.80	0.86
Sharp-Tailed Grouse**	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
Band-Tailed Pigeon**	--	--	--	--	11	23	9	15	--	0.10	--	--	0.00	0.03	0.01	0.02
White-Tailed Ptarmigan**	20	14	14	9	15	3	11	13	0.02	0.02	0.02	0.01	0.02	0.00	0.02	0.02
Cottontail Rabbit	18,616	14,059	13,992	20,322	24,076	22,878	23,079	21,137	21.10	17.30	19.60	29.80	34.30	34.20	35.60	34.13
Snowshoe Hare	3,796	3,365	3,277	3,702	4,725	4,895	4,095	3,427	4.30	4.10	4.60	5.40	6.70	7.30	6.30	5.53
Total Hunters***	88,431	81,119	71,259	68,174	70,142	67,017	64,868	61,922								

* Includes both spring and fall hunts.

**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, 1961-91.

	Pheasant			Mourning Dove			Chukar			Sage Grouse			Forest Grouse			Quail			Hungarian Partridge		
Year	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%	No Bag	Hunting Trips	%
1961	714	3,204	22	51	583	9	318	539	59	--	--	--	--	--	--	109	383	28	72	123	59
1962	500	2,685	19	39	456	9	147	362	41	--	--	--	--	--	--	62	201	31	36	108	33
1963	795	3,317	24	53	691	8	248	550	45	220	468	47	188	281	67	71	305	23	59	177	33
1964	911	3,115	29	60	681	9	266	568	47	45	154	29	144	229	63	94	316	30	62	150	41
1965	1,165	4,009	29	--	--	--	486	851	57	82	168	49	225	311	72	128	371	34	93	233	40
1966	1,242	4,297	29	136	1,067	13	523	881	48	54	131	41	133	331	40	106	315	34	63	219	29
1967	1,353	4,833	28	153	1,319	12	477	915	52	138	266	52	194	475	41	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	27	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	42	182	465	39	148	292	51
1970	1,546	4,686	33	193	1,274	15	466	962	48	257	603	43	209	666	31	126	314	40	101	210	48
1971	1,783	5,049	35	210	1,333	16	464	934	50	234	625	37	223	673	33	162	385	42	87	210	41
1972	1,743	4,617	38	270	1,421	19	457	827	55	259	593	44	271	794	34	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	32	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	31	157	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	40	177	406	44	121	220	55
1976	1,739	4,294	40	273	1,709	16	408	781	52	259	783	33	371	1,131	33	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	38	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	30	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	35	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	39	87	254	34	75	206	36
1981	1,305	4,637	28	239	1,558	15	302	669	45	184	493	37	297	741	40	97	241	40	57	172	33
1982	1,768	6,725	26	363	2,338	16	406	824	49	269	620	43	325	919	35	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	27	105	310	34	82	225	36
1984	1,245	4,643	27	274	1,711	16	287	548	52	202	435	46	270	640	42	84	189	44	51	76	67
1985	1,207	4,017	30	221	1,500	15	208	426	49	161	376	43	228	656	35	61	148	41	35	54	65
1986	1,211	3,615	33	224	1,476	15	237	537	44	139	368	38	221	667	33	58	125	46	36	61	59
1987	863	2,837	30	140	1,047	13	194	537	36	90	307	29	143	671	21	46	111	41	34	94	35
1988	1,372	3,953	35	244	1,525	16	308	77	40	187	557	34	224	1,184	19	63	171	37	73	154	47
1989	1,126	2,985	38	184	1,184	16	263	614	43	183	468	39	257	961	27	68	160	43	53	108	49
1990	988	2,745	36	161	1,234	13	282	632	45	162	483	34	233	810	39	54	132	41	46	117	39
1991	1,062	2,461	43	205	1,301	16	309	608	51	198	461	43	262	829	32	69	152	45	67	153	44
AVERAGES (1961-90)			32			14			48			40			37			38			45

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 wild turkey, band-tailed pigeon, 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

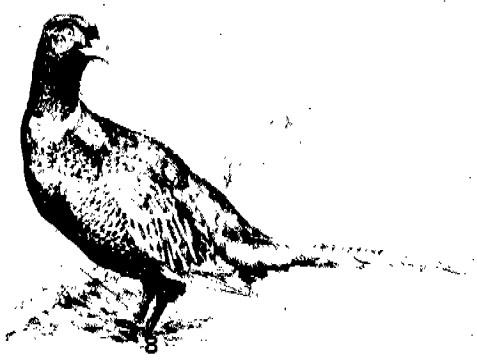
SUMMARY

The 1990-91 winter was slightly colder and drier than normal and survival of brood stock should have been good. Vegetation continues to return to inundated mud flats around the Great Salt Lake after the flooding of 1984. Aquatic vegetation such as cattails and bulrushes conducive to winter survival or pheasants is re-establishing noticeably.

Weather conditions during the nesting season were questionable in 1991. Statewide monthly average temperatures were at or above normal; average precipitation was above normal across several climatic subdivisions in May. Temperatures were at or above normal through the rest of the year and precipitation was scatterd and sparse. Pheasants observed on roadside routes was below 1990, but more hens appeared to have young. Overall, production was slightly up.

Harvest statistics compiled from the questionnaire indicated the same success compared to 1990. Overall, harvest declined and was below average, resulting in the lowest recorded values since 1950. Opening weekend success was up compared to the previous year based upon field bag check data and despite cold, windy and snowy hunting conditions.

Hunters did not react to reduced pheasant populations in a strongly density dependent fashion. While they hunted fewer days or not at all, the reduction in hunters and days hunted was not in direct proportion to the reduction in harvest.



Winter Sex Ratio Counts

Results of the survey for the winter of 1990-91 and long-term trends are shown in Tables 1, 2 and Figure 1 of this section. Statewide comparisons to the winter of 1989-90 and the 10-year (1981-90) average are as follows:

	Winter of 1990-91	Percent change from 1989-90	Average
Total pheasants counted (roadside)	844	+77	-75
Hens per cock	2.65	+56	-28
Pheasants observed per 100 hours	1,468	+152	+3
Total hours effort (roadside)	59	-28	-71

Winter sex ratio counts indicated a 152 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. The hen-cock ratio increased 56 percent from 1990 and was 28 percent below the long-term average. Access was good, but the lack of snow kept birds scattered. Less than average effort also reduced pheasant observations. No effort was expended in the Southeastern Region.

Roadside Counts

A summary of summer roadside pheasant counts for 1991 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 1991 survey results compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Average
Total pheasants observed	793	-23	-62
Total miles driven	1,566	+8	-25
Pheasants per mile	0.51	-28	-47
Average brood size	4.61	-4	-11
Young per hen	3.81	+3	-3
Percent of hens with young	79	+4	+6

December 1990 through January 1991 temperatures were below normal. The average monthly temperatures of all reporting stations in the seven climatic subdivisions in Utah were 4.1 degrees below normal in January (Appendix A). Temperatures in April, May and June were just below normal. Precipitation was below normal during April and June and slightly above normal in March and April. Temperature was below normal and precipitation slightly above normal during the critical month of May. Cold, wet weather may have affected brood success. Below average accumulated precipitation continued through December, January and February resulting in drought over most of the state. Average temperatures throughout the state were at or above average July through October. Brood survival may again have declined due to hot, dry weather during July through August.

Pheasant production increased from 1990 in Utah. The statewide density index (pheasants per mile) decreased (0.51) in 1991, and is 47 percent below the 10-year average.

Vegetation is re-establishing on alkaline soils around the Great Salt Lake. This should increase both the quantity and quality of wintering, nesting and brood-rearing habitat in Box Elder, Salt Lake, Davis and Weber counties.

Harvest

Hunter Questionnaire

Results of the hunter questionnaire for 1991 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 1991 harvest statistics to 1990 and the previous 43-year average follow:

		Percent change from	
	1991	1990	Average
Pheasant hunters	42,813	-9	-46
Pheasants harvested	72,612	-8	-66
Hunter-days afield	150,096	-7	-33
Pheasants per hunter-day	0.48	-1	-50
Pheasants per hunter	1.70	+1	-36

Hunters were told to expect poor hunting with slight improvement in hunter success compared to 1990. Low breeding populations were noted. Production was slightly below average for those birds which made it through the winter. We predicted 55,000 hunters and 70,000 harvest.

Total hunters again decreased (9 percent) from 1990 and remained below the long-term (1948-90) average. Total harvest decreased 8 percent from 1990. Hunter success (pheasants per hunter-day) decreased 1 percent from 1990. Pheasants per hunter increased (1 percent), but remains 36 percent below the long-term average.

Long-term trends (1948-91) 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 fragementation resulting in increased predation.

FIGURE1. PHEASANT WINTER SEX RATIO INDICES, 1965-91.

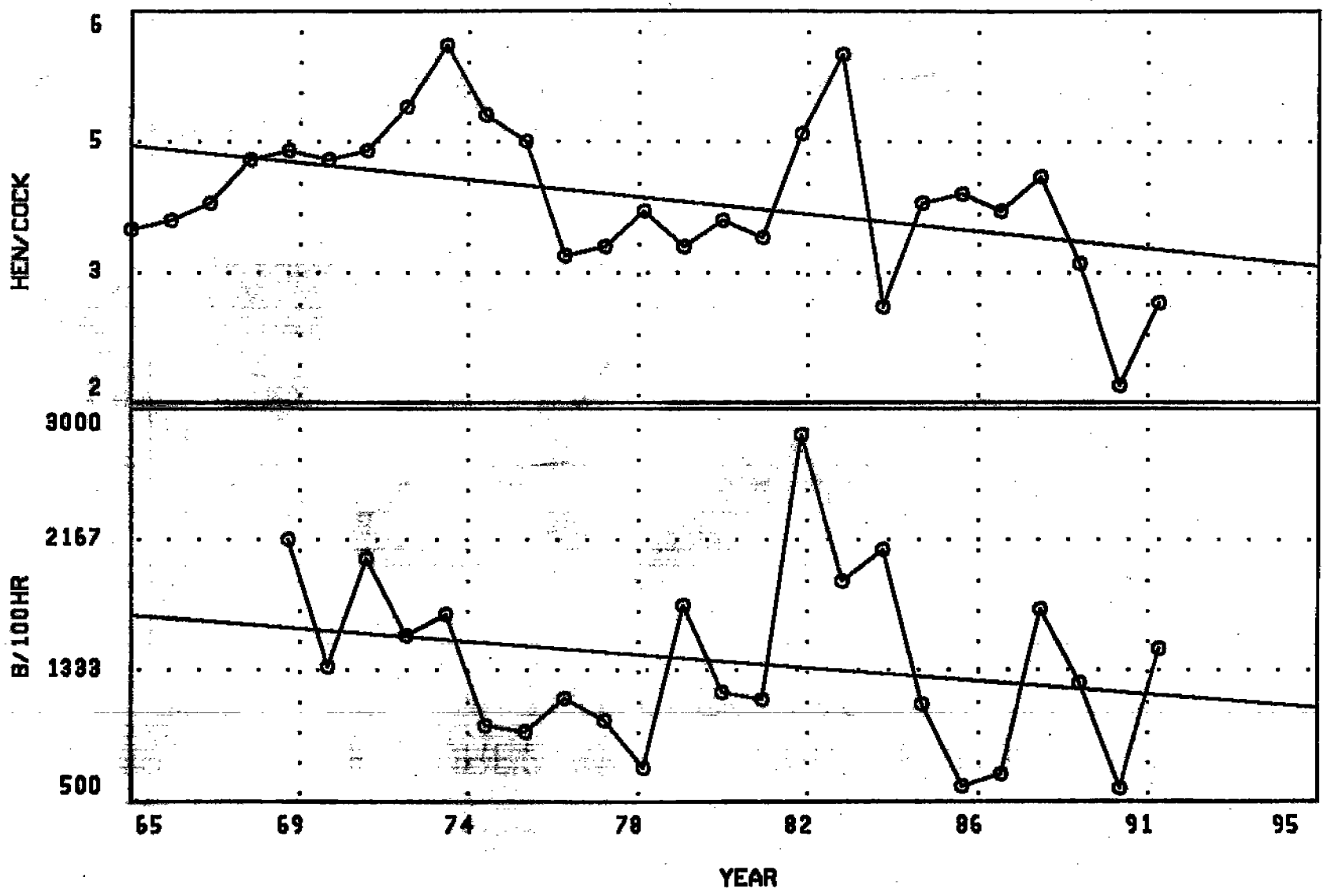
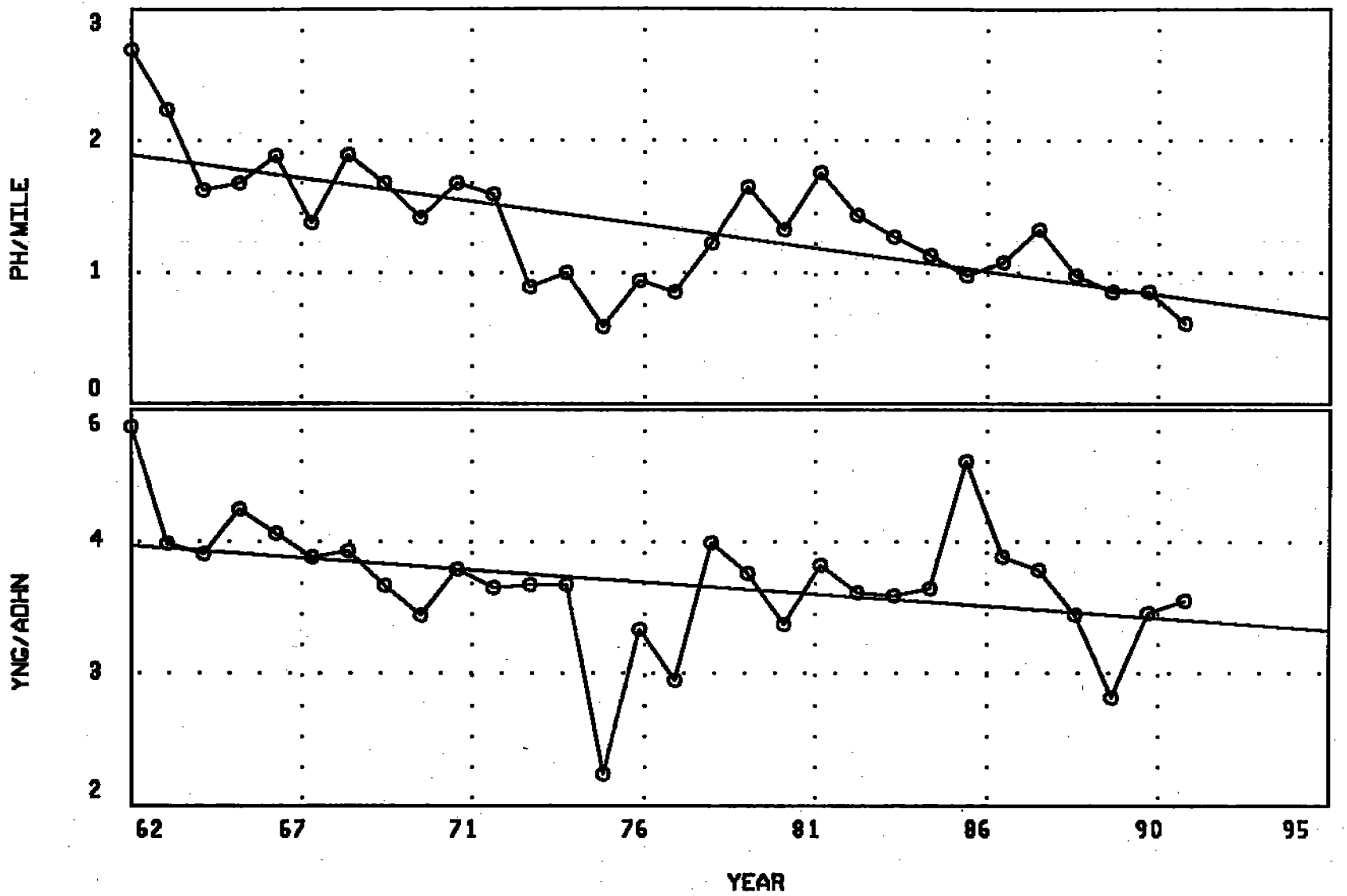


FIGURE2. PHEASANT PRODUCTION INDICES, 1962-91.



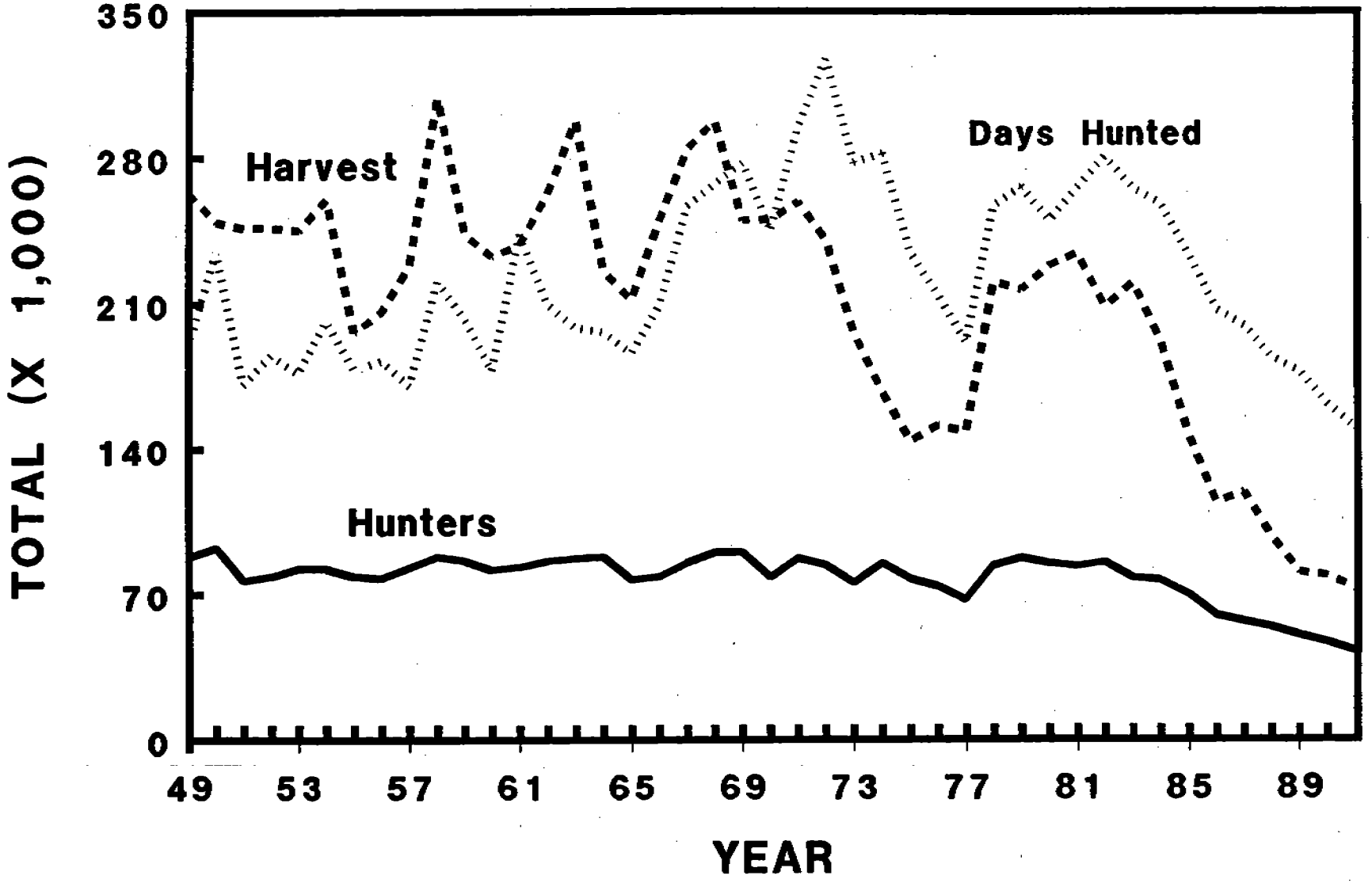


Figure 3. Statewide trends of pheasant harvest statistics, 1949-91.

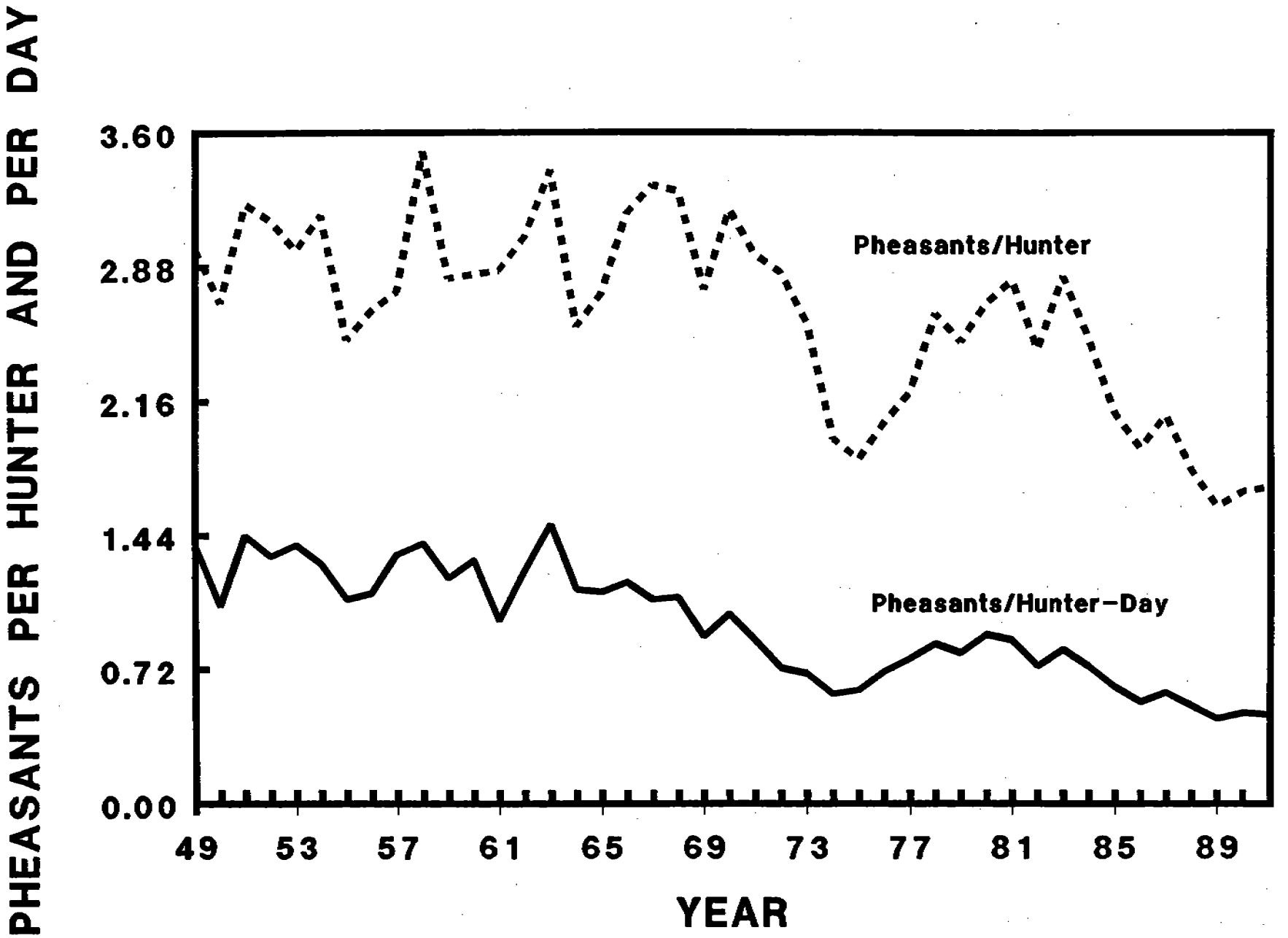
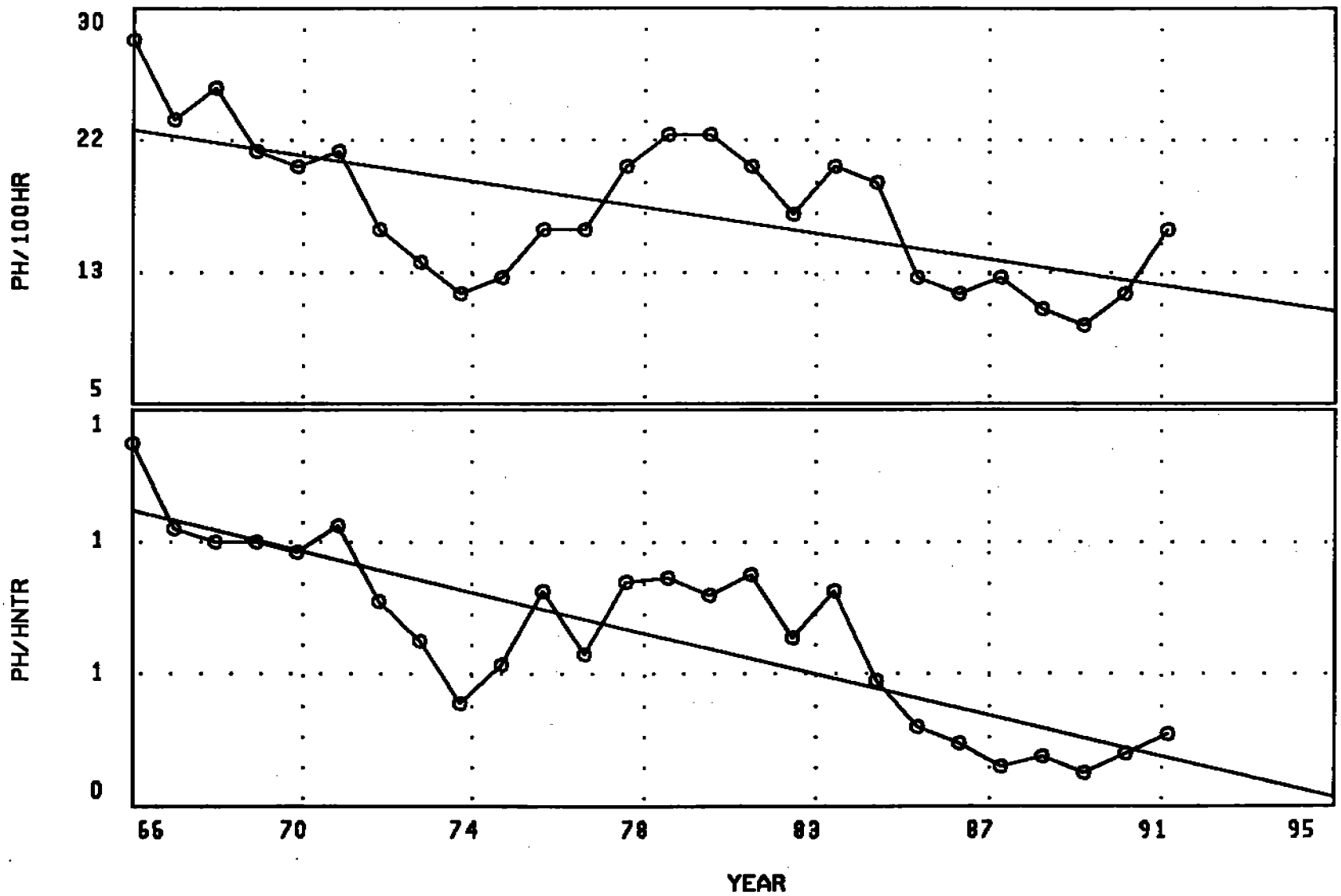


Figure 4. Statewide trends of pheasant hunter success rates, 1949-91.

FIGURE5. PHEASANT FIELD BAG CHECK INDICES, 1966-91.



Field Bag Checks

A summary of pheasant field bag check data for 1991 is shown in Table 14. The hunter success trend determined via bag checks since 1986 is found in Table 15 and Figure 5. A comparison of 1991 data, on a statewide basis, to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Percent change from Average
Total hunters checked	217	-87	-93
Total hours hunted	570	-89	-94
Pheasants per hunter (complete hunts)	0.42	+17	-19
Pheasants bagged per 100 hours	16	+33	+10
Average hours per hunter-day (complete hunts)	2.63	-17	-24
Hours hunted per pheasant bagged (complete hunts)	6.26	-28	-14

On opening day, weather conditions were cold, windy and snowy.

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

Although hunter pressure and numbers decreased from 1990, persistent hunters seemed to be successful in taking birds and spent less time doing so.

Statewide hunter success was up compared with 1990 through the entire season.

Table 1. Summary of pheasant winter sex ratio counts, 1990-91.

Region and County	Roadside Observations					Flushing Observations					Effort Expended				Pheas. Obs./ 100 Hours of Road. Obs.
	Cocks	Hens	Total	Hens/ Cock	Cocks/ 100 Hens	Cocks	Hens	Total	Hens/ Cock	Cocks/ 100 Hens	Vehicle Miles	Hours of Effort Vehicle	Walk	Total	
Northern Region															
Box Elder	30	74	104	2.47	41	--	--	--	--	--	--	--	--	--	--
Cache	7	24	31	3.43	29	--	--	--	--	--	--	--	--	--	--
Davis	10	69	79	6.90	14	1	4	5	4.00	25	111	6	1	7	1,317
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	9	28	37	3.11	32	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	56	195	251	3.48	29	1	4	5	4.00	25	111	6	1	7	4,183
Central Region															
Juab	9	32	41	3.56	28	--	--	--	--	--	8	2	--	2	2,050
Salt Lake	11	19	30	1.73	58	--	--	--	--	--	65	5	--	5	600
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	45	223	268	4.96	20	--	--	--	--	--	156	15	--	15	1,787
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	65	274	339	4.22	24	--	--	--	--	--	229	22	--	22	1,541
Southern Region															
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	19	42	61	2.21	45	8	11	19	1.38	73	35	3	--	3	2,033
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	19	42	61	2.21	45	8	11	19	1.38	73	35	3	--	3	2,033
Northeastern Region															
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	12	21	33	1.75	57	--	--	--	--	--	276	17	--	17	200
Uintah	79	81	160	1.03	98	--	--	--	--	--	158	10	--	10	1,600
REGIONAL TOTALS	91	102	193	1.12	89	--	--	--	--	--	434	27	--	27	728
Southeastern Region															
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	231	613	844	2.65	38	9	15	24	1.67	60	809	58	1	59	1,468

Table 2. Trend of pheasant winter sex ratio counts, 1985-91.

Region and County	1985-86 Hens/ Cock	1985-86 Birds/ 100 Hr	1986-87 Hens/ Cock	1986-87 Birds/ 100 Hr	1987-88 Hens/ Cock	1987-88 Birds/ 100 Hr	1988-89 Hens/ Cock	1988-89 Birds/ 100 Hr	1989-90 Hens/ Cock	1989-90 Birds/ 100 Hr	1990-91 Hens/ Cock	1990-91 Birds/ 100 Hr	Average 1985-1990	
Northern Region														
Box Elder	2.40	1,453	5.80	524	4.80	2,409	4.20	3,100	3.60	533	2.50	--		
Cache	17.20	585	6.80	168	4.30	390	2.70	386	1.30	253	3.40	--		
Davis	8.40	4,683	7.50	340	11.30	2,667	7.30	2,014	1.50	143	6.90	1,317		
Morgan	--	--	--	--	--	--	--	--	--	--	--	--		
Rich	--	--	--	--	--	--	--	--	--	--	--	--		
Summit	--	--	--	--	--	--	--	--	--	--	--	--		
Weber	27.00	350	6.30	587	--	--	4.20	700	3.30	30	3.10	--		
REGIONAL TOTALS	5.50	1,235	6.30	379	5.50	925	4.10	833	2.10	321	3.50	4,183	4.50	1,313
Central Region														
Juab	3.40	947	3.90	1,005	1.80	1,486	2.40	1,100	2.10	1,100	3.60	2,050		
Salt Lake	0.00	0	4.50	--	2.50	233	--	--	1.30	533	1.70	600		
Sanpete	0.00	0	6.10	3,900	6.40	1,920	--	--	--	--	--	--		
Tooele	0.00	0	--	--	--	--	--	--	0.80	2,600	--	--		
Utah	3.40	965	3.50	857	2.40	2,650	10.00	2,200	2.60	1,016	5.00	1,787		
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	3.40	958	3.80	1,057	3.00	1,893	3.50	1,344	1.70	1,119	4.20	1,541	3.27	1,319
Southern Region														
Beaver	--	--	--	--	--	--	--	--	--	--	--	--		
Iron	--	--	--	--	--	--	--	--	--	--	--	--		
Kane	--	--	--	--	--	--	--	--	--	--	--	--		
Millard	--	--	3.40	4,270	7.00	4,135	1.60	900	--	--	2.20	2,033		
Piute	--	--	--	--	--	--	--	--	--	--	--	--		
Sevier	--	--	9.60	209	3.90	2,230	12.60	--	--	--	--	--		
Washington	--	--	--	--	--	--	--	--	--	--	--	--		
Wayne	--	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	--	--	3.70	2,943	5.40	3,105	3.60	2,778	--	--	2.20	2,033	4.23	2,942
Northeastern Region														
Daggett	--	--	--	--	--	--	--	--	--	--	--	--		
Duchesne	1.50	241	2.00	139	1.60	1,400	1.60	1,425	0.80	550	1.80	200		
Uintah	1.70	285	0.60	145	1.80	1,627	2.50	5,600	1.20	773	1.00	1,600		
REGIONAL TOTALS	1.50	255	1.20	1,741	1.80	1,556	1.80	1,889	1.10	660	1.10	728	1.42	1,138
Southeastern Region														
Carbon	2.50	538	--	--	--	--	--	--	--	--	--	--		
Emery	1.60	161	--	--	--	--	--	--	--	--	--	--		
Grand	--	--	--	--	--	--	--	--	--	--	--	--		
San Juan	--	--	--	--	--	--	--	--	--	--	--	--		
REGIONAL TOTALS	2.00	261	--	--	--	--	--	--	--	--	--	--	2.00	261
STATE TOTALS	3.90	594	3.70	673	4.10	1,724	3.10	1,251	1.70	582	2.70	1,468	3.20	1,049

Table 3. Pheasant summer inventory, 1991.

Region and County	No. Routes	Total Miles	Total	Distinct Broods Hens	Distinct Broods Young	Mixed Obser. Hens	Mixed Obser. Young	Adults w/o Young Cocks	Adults w/o Young Hens	Total Hens	Total Young	Total Cocks	Total Pheas.	Pheas./ Mile	Young/ Mile	Mean Brood	Young/ Ad. Hen	%Hens w/Young
Northern Region																		
Box Elder	2	170	5	5	16	5	7	1	2	12	23	1	36	0.21	0.14	3.20	1.92	83
Cache	3	158	5	5	26	11	10	5	7	23	36	5	64	0.41	0.23	5.20	1.57	70
Davis	1	70	3	3	18	--	--	3	3	6	18	3	27	0.39	0.26	6.00	3.00	50
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	1	87	6	6	26	--	--	6	4	10	26	6	42	0.48	0.30	4.33	2.60	60
REGIONAL TOTALS	7	485	19	19	86	16	17	15	16	51	103	15	169	0.35	0.21	4.53	2.02	69
Central Region																		
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	1	41	4	4	17	4	21	4	1	9	38	4	51	1.24	0.93	4.25	4.22	89
Sanpete	2	180	12	12	60	12	61	3	5	29	121	3	153	0.85	0.67	5.00	4.17	83
Tooele	1	51	0	0	0	0	27	0	1	1	27	0	28	0.55	0.53	--	--	--
Utah	3	224	8	8	41	5	68	4	4	17	109	4	130	0.58	0.49	5.13	6.41	76
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	7	496	24	24	118	21	177	11	11	56	295	11	362	0.73	0.59	4.92	5.27	80
Southern Region																		
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	1	120	5	5	27	2	7	4	0	7	34	4	45	0.38	0.28	5.40	4.86	100
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	120	5	5	27	2	7	4	0	7	34	4	45	0.38	0.28	5.40	4.86	100
Northeastern Region																		
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	3	278	16	16	72	10	46	15	5	31	118	15	164	0.59	0.42	4.50	3.81	84
Uintah	1	97	6	6	20	0	0	2	0	6	20	2	28	0.29	0.21	3.33	3.33	100
REGIONAL TOTALS	4	375	22	22	92	10	46	17	5	37	138	17	192	0.51	0.37	4.18	3.73	86
Southeastern Region																		
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	1	90	4	4	18	0	2	1	0	4	20	1	25	0.28	0.22	4.50	5.00	100
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	1	90	4	4	18	0	2	1	0	4	20	1	25	0.28	0.22	4.50	5.00	100
STATE TOTALS	20	1,566	74	74	341	49	249	48	32	155	590	48	793	0.51	0.38	4.61	3.81	79

Table 4. Trend of pheasants observed per mile during summer roadside pheasant counts, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	1.40	0.74	1.43	0.46	0.91	0.44	0.81	0.63	0.19	0.32	0.21	
Cache	0.92	0.17	0.04	0.19	0.03	0.01	0.29	0.13	0.23	0.09	0.41	
Davis	1.38	0.83	1.07	0.34	0.71	1.04	1.30	0.70	0.41	0.48	0.39	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	3.17	1.79	--	1.56	--	0.86	--	--	0.52	1.26	0.48	
REGIONAL TOTALS	1.56	0.78	0.63	0.48	0.50	0.43	0.71	0.40	0.30	0.42	0.35	0.62
Central Region												
Juab	0.89	0.61	0.44	0.77	0.48	0.71	--	0.38	0.50	0.14	--	
Salt Lake	1.09	1.24		1.80	0.46	2.10	1.08	--	--	1.26	1.24	
Sanpete	5.25	1.78	1.74	0.99	1.87	1.15	1.63	1.18	1.70	1.23	0.85	
Tooele	0.48	0.45	--	--	--	0.20	0.08	0.15	--	0.17	0.55	
Utah	2.19	3.89	1.95	2.21	--	2.13	2.35	2.00	1.00	1.45	0.58	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	2.01	2.15	1.72	1.49	1.35	1.61	1.79	1.42	1.50	1.09	0.73	1.61
Southern Region												
Beaver	0.63	0.66	0.23	0.11	0.63	0.23	0.08	0.17	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	1.24	0.07	0.31	--	0.06	0.01	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	2.85	1.15	1.28	1.09	2.27	0.98	0.67	0.67	--	0.34	0.38	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	0.87	1.37	1.27	1.52	0.62	1.82	1.95	1.30	--	--	--	
Washington	1.41	0.62	1.09	--	0.13	1.30	0.47	0.22	0.06	--	--	
Wayne	1.04	0.40	0.26	--	0.39	0.38	--	--	--	--	--	
REGIONAL TOTALS	0.17	1.05	0.94	1.09	1.25	1.07	1.44	0.78	0.06	0.34	0.38	0.82
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	0.84	0.73	0.72	0.68	0.16	0.44	0.38	0.58	0.39	0.93	0.59	
Uintah	1.05	1.27	2.97	1.33	0.35	0.46	0.55	0.45	0.24	0.52	0.29	
REGIONAL TOTALS	0.91	0.90	1.39	0.91	0.22	0.45	0.45	0.54	0.32	0.71	0.51	0.68
Southeastern Region												
Carbon	1.22	0.28	0.42	--	0.12	0.26	--	--	--	--	--	
Emery	0.74	0.74	0.32	0.66	0.83	0.73	0.72	1.06	1.00	0.61	0.28	
Grand	--	--	1.70	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.86	0.61	0.39	0.66	0.59	0.61	0.72	1.06	1.00	0.61	0.28	0.71
STATE TOTALS	1.46	1.19	1.06	0.94	0.81	0.80	1.10	0.81	0.71	0.71	0.51	0.96

Table 5. Trend of young observed per mile during summer roadside pheasant counts, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
1 Box Elder	1.07	0.44	0.63	0.26	0.65	0.29	0.62	0.39	0.16	0.27	0.14	
2 Cache	0.70	0.11	0.00	0.13	0.02	0.00	0.25	0.09	0.14	0.06	0.23	
3 Davis	0.81	0.43	0.78	0.16	0.35	0.85	0.98	0.52	0.22	0.31	0.26	
4 Morgan	--	--	--	--	--	--	--	--	--	--	--	
5 Rich	--	--	--	--	--	--	--	--	--	--	--	
6 Summit	--	--	--	--	--	--	--	--	--	--	--	
7 Weber	2.38	1.38	--	1.27	--	0.76	--	--	0.39	0.97	0.30	
REGIONAL TOTALS	1.15	0.52	0.35	0.32	0.33	0.32	0.55	0.28	0.20	0.32	0.21	0.43
Central Region												
8 Juab	0.63	0.42	0.36	0.58	0.39	0.57	--	0.17	0.08	0.09	--	
9 Salt Lake	0.57	0.84	--	1.26	0.31	1.62	0.79	--	--	0.97	0.93	
10 Sanpete	4.40	1.44	1.44	0.76	1.54	0.90	1.23	0.96	1.30	0.91	0.67	
11 Tooele	0.28	0.22	--	--	--	0.08	0.07	0.07	--	0.10	0.53	
12 Utah	1.68	2.52	1.34	1.36	--	1.68	1.81	1.57	1.00	1.15	0.49	
13 Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	1.51	1.63	1.31	0.99	1.09	1.26	1.37	1.11	1.10	0.87	0.59	1.22
Southern Region												
14 Beaver	0.54	0.48	0.17	0.08	0.51	0.14	0.07	0.10	--	--	--	
15 Garfield	--	--	--	--	--	--	--	--	--	--	--	
16 Iron	1.07	0.04	0.23	--	0.05	--	0.00	--	--	--	--	
17 Kane	--	--	--	--	--	--	--	--	--	--	--	
18 Millard	2.27	0.83	1.00	0.89	0.20	0.76	1.55	0.50	--	0.31	0.28	
19 Piute	--	--	--	--	--	--	--	--	--	--	--	
20 Sevier	0.67	1.07	0.94	1.19	1.25	1.48	1.54	0.95	--	--	--	
21 Washington	0.89	0.43	0.68	--	--	0.86	0.22	0.16	--	--	--	
22 Wayne	0.87	0.21	0.12	--	0.28	0.19	--	--	--	--	--	
REGIONAL TOTALS	1.30	0.76	0.68	0.86	1.03	0.84	1.12	0.57	--	0.31	0.28	0.83
Northeastern Region												
23 Daggett	--	--	--	--	--	--	--	--	--	--	--	
24 Duchesne	0.52	0.54	0.55	0.46	0.07	0.29	0.25	0.32	0.20	0.58	0.42	
25 Uintah	0.83	0.95	2.25	1.12	0.29	0.33	0.40	0.30	0.14	0.35	0.21	
REGIONAL TOTALS	0.63	0.66	1.06	0.69	0.14	0.30	0.31	0.32	0.17	0.46	0.37	0.47
Southeastern Region												
26 Carbon	0.93	0.18	0.27	--	0.02	0.15	--	--	--	--	--	
27 Emery	0.52	0.45	0.18	0.45	0.63	0.56	0.59	0.86	1.00	0.43	0.22	
28 Grand	--	--	1.10	--	--	--	--	--	--	--	--	
29 San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.65	0.68	0.23	0.45	0.42	0.34	0.59	0.86	1.00	0.43	0.22	0.57
STATE TOTALS	1.05	0.85	0.73	0.66	0.60	0.61	0.79	0.63	0.62	0.48	0.38	0.70

Table 6. Trend of young per adult hen ratios found during summer roadside pheasant counts, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	4.09	3.00	1.41	2.44	3.63	2.38	4.42	2.21	7.00	5.86	1.92	
Cache	4.18	3.43	–	3.40	1.50	–	7.17	2.33	2.60	5.50	1.57	
Davis	1.81	1.25	3.31	1.67	1.26	5.92	3.30	6.86	1.30	2.41	3.00	
Morgan	–	–	–	–	–	–	–	–	–	–	–	
Rich	–	–	–	–	–	–	–	–	–	–	–	
Summit	–	–	–	–	–	–	–	–	–	–	–	
Weber	3.38	4.70	–	5.50	–	7.33	–	–	4.80	5.50	2.60	
REGIONAL TOTALS	3.39	3.00	1.98	3.23	2.60	3.92	4.18	3.44	2.90	3.86	2.02	3.25
Central Region												
Juab	4.29	3.75	6.50	4.20	4.33	4.00	–	2.00	0.23	4.00	–	
Salt Lake	2.04	2.73	–	3.58	3.13	5.10	3.88	–	–	3.80	4.22	
Sanpete	6.71	5.48	5.85	5.38	6.10	3.98	3.25	4.48	3.20	3.34	4.17	
Tooele	2.43	2.17	–	–	–	1.50	4.00	2.00	–	2.00	–	
Utah	3.80	3.53	2.51	1.66	–	4.16	4.18	3.94	3.80	4.31	6.41	
Wasatch	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	4.08	3.95	3.69	2.59	5.61	4.18	3.89	4.00	4.70	3.92	5.27	4.06
Southern Region												
Beaver	7.00	4.89	3.75	2.33	5.11	2.60	6.00	1.80	–	–	–	
Garfield	–	–	–	–	–	–	–	–	–	–	–	
Iron	8.56	3.00	5.33	–	3.00	–	–	–	–	–	–	
Kane	–	–	–	–	–	–	–	–	–	–	–	
Millard	4.65	4.48	6.37	6.24	4.33	4.04	3.99	3.64	–	15.00	4.86	
Piute	–	–	–	–	–	–	–	–	–	–	–	
Sevier	4.18	3.94	3.49	4.64	4.58	5.22	5.14	3.77	–	–	–	
Washington	2.69	3.46	2.23	–	–	2.78	1.11	3.50	–	–	–	
Wayne	8.75	1.67	3.33	–	3.17	2.43	–	–	–	–	–	
REGIONAL TOTALS	4.66	3.93	3.69	5.05	5.92	4.43	4.32	3.61	–	15.00	4.86	5.62
Northeastern Region												
Daggett	–	–	–	–	–	–	–	–	–	–	–	
Duchesne	2.94	6.10	5.03	3.81	3.00	3.73	3.40	2.36	1.68	2.60	3.81	
Uintah	5.50	4.96	5.16	13.00	11.50	4.13	3.65	3.67	2.33	3.30	3.33	
REGIONAL TOTALS	3.73	5.54	5.11	6.38	5.83	3.88	3.52	2.64	2.01	2.82	3.73	4.15
Southeastern Region												
Carbon	7.91	5.67	3.13	–	0.50	3.00	–	–	–	–	–	
Emery	3.97	2.56	2.93	3.75	4.17	5.15	6.63	6.42	3.60	3.50	5.00	
Grand	–	–	5.50	–	–	–	–	–	–	–	–	
San Juan	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	4.98	4.93	3.21	3.75	3.80	4.04	6.63	6.42	3.60	3.50	5.00	4.49
STATE TOTALS	4.12	3.88	3.85	3.92	5.04	4.20	4.08	3.68	2.95	3.70	3.81	3.94

Table 7. Trend of the percent of hens observed with broods during summer roadside pheasant counts, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	83	73	52	56	74	48	75	64	100	100	83	
Cache	77	71	--	100	50	--	83	50	56	67	70	
Davis	71	67	75	33	42	85	89	86	47	50	50	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	91	91	--	92	--	100	--	--	100	80	60	
REGIONAL TOTALS	80	76	57	66	60	62	82	67	76	74	69	70
Central Region												
Juab	100	100	100	80	100	100	--	50	6	100	--	
Salt Lake	57	62	--	79	63	90	88	--	--	67	89	
Sanpete	97	92	92	90	92	76	85	88	81	78	83	
Tooele	71	67	--	--	--	50	100	50	--	--	--	
Utah	66	71	60	63	--	86	94	81	66	89	76	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	72	76	71	70	56	84	91	82	51	81	80	73
Southern Region												
Beaver	86	89	50	33	89	80	100	40	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	100	100	100	--	100	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	83	73	94	100	84	98	86	86	--	100	100	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	82	83	76	91	88	87	86	69	--	--	--	
Washington	66	77	83	--	--	64	22	50	--	--	--	
Wayne	88	78	--	--	83	100	--	--	--	--	--	
REGIONAL TOTALS	81	80	83	91	85	88	82	74	--	100	100	85
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	68	66	82	67	75	73	96	39	61	60	84	
Uintah	100	86	75	86	75	73	91	75	56	79	100	
REGIONAL TOTALS	78	75	77	72	75	73	94	46	59	67	86	72
Southeastern Region												
Carbon	100	67	63	--	50	66	--	--	--	--	--	
Emery	72	58	64	65	67	92	100	100	64	64	100	
Grand	--	--	--	100	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	79	59	67	65	65	91	100	100	64	64	100	75
STATE TOTALS	79	75	74	75	62	83	87	72	64	76	79	75

Table 8. Trend of average brood size for pheasants, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	4.90	4.13	4.00	4.63	5.77	5.33	6.00	4.80	8.00	5.40	3.20	
Cache	5.93	6.50	--	3.40	3.00	--	4.80	4.00	4.00	4.50	5.20	
Davis	3.64	2.00	5.40	3.33	3.50	5.12	4.40	6.60	4.50	4.20	6.00	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	3.70	5.66	--	6.00	6.33	--	--	5.50	4.30	--	4.33	
REGIONAL TOTALS	4.48	4.88	4.58	4.72	5.11	5.41	5.10	5.40	5.40	5.00	4.53	5.01
Central Region												
Juab	3.80	3.75	6.50	6.00	4.33	4.67	--	4.00	4.00	4.00	--	
Salt Lake	4.67	4.44	4.44	4.75	5.00	5.70	3.80	3.80	--	5.00	4.25	
Sanpete	7.24	5.93	6.39	6.38	8.28	5.10	4.80	5.80	4.20	4.40	5.00	
Tooele	3.67	3.50	--	--	--	3.00	4.00	4.00	--	3.00	--	
Utah	5.38	4.99	4.02	2.95	--	4.75	4.90	4.80	5.10	5.00	5.13	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	5.66	5.15	5.01	3.75	7.42	4.89	4.80	5.00	4.40	4.70	4.92	5.08
Southern Region												
Beaver	6.50	5.00	6.50	7.00	5.75	3.25	6.00	4.50	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	8.14	3.00	5.33	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	6.30	6.30	6.40	6.00	40.63	3.72	5.30	4.90	--	3.80	5.40	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	5.00	4.56	5.14	5.10	5.17	5.69	5.80	5.60	--	--	--	
Washington	5.90	4.40	3.90	--	--	4.14	5.00	7.00	--	--	--	
Wayne	1.00	2.00	--	--	3.33	2.25	--	--	--	--	--	
REGIONAL TOTALS	6.14	4.98	5.18	5.42	7.35	4.70	5.60	5.30	--	3.80	5.40	5.39
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	4.58	7.31	4.50	5.87	4.00	5.75	3.90	5.30	2.70	5.30	4.50	
Uintah	5.50	4.25	5.11	5.50	6.33	5.71	4.40	5.30	4.20	4.90	3.33	
REGIONAL TOTALS	4.89	5.84	4.87	5.72	4.78	5.74	4.10	5.30	3.50	5.10	4.18	4.98
Southeastern Region												
Carbon	7.67	6.00	3.00	--	1.00	--	--	--	--	--	--	
Emery	6.00	4.42	6.60	5.00	5.20	6.89	5.00	7.10	5.70	5.60	4.50	
Grand	--	--	5.50	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	6.24	4.64	5.30	5.00	4.82	5.46	5.00	7.10	5.70	5.60	4.50	5.49
STATE TOTALS	5.45	5.11	5.03	4.78	6.71	4.94	5.10	5.30	4.60	4.80	4.61	5.18

Table 9. Summary of pheasant hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	331	16,004	8,472	0.53	10.66	11.67
CACHE	248	13,778	7,028	0.51	9.18	9.68
DAVIS	191	9,463	3,183	0.34	6.31	4.38
MORGAN	8	347	52	0.15	0.23	0.07
RICH	2	34	0	0.00	0.02	0.00
SUMMIT	4	347	17	0.05	0.23	0.02
WEBER	266	15,709	5,827	0.37	10.47	8.03
REGIONAL TOTALS	1,050	55,686	24,581	0.44	37.10	33.85
CENTRAL REGION						
JUAB	84	3,166	1,791	0.57	2.11	2.47
SALT LAKE	123	5,114	1,617	0.32	3.41	2.23
SANPETE	166	7,306	4,314	0.59	4.87	5.94
TOOELE	69	2,870	1,252	0.44	1.91	1.72
UTAH	659	36,028	19,918	0.55	24.00	27.43
WASATCH	12	539	365	0.68	0.36	0.50
REGIONAL TOTALS	1,113	55,025	29,260	0.53	36.66	40.30
SOUTHERN REGION						
BEAVER	19	922	504	0.55	0.61	0.69
GARFIELD	1	17	0	0.00	0.01	0.00
IRON	25	1,374	400	0.29	0.92	0.55
KANE	0	0	0	0.00	0.00	0.00
MILLARD	185	9,411	5,532	0.59	6.27	7.62
PIUTE	4	173	17	0.10	0.12	0.02
SEVIER	142	7,289	2,626	0.36	4.86	3.62
WASHINGTON	29	1,513	313	0.21	1.01	0.43
WAYNE	2	34	17	0.50	0.02	0.02
REGIONAL TOTALS	407	20,736	9,411	0.45	13.82	12.96
NORTHEASTERN REGION						
DAGGETT	0	0	0	0.00	0.00	0.00
DUCHESNE	130	6,332	4,157	0.66	4.22	5.73
UINTAH	89	4,749	2,226	0.47	3.16	3.07
REGIONAL TOTALS	219	11,081	6,384	0.58	7.38	8.79
SOUTHEASTERN REGION						
CARBON	38	2,800	608	0.22	1.87	0.84
EMERY	71	4,209	2,122	0.50	2.80	2.92
GRAND	3	365	173	0.48	0.24	0.24
SAN JUAN	6	191	69	0.36	0.13	0.10
REGIONAL TOTALS	118	7,567	2,974	0.39	5.04	4.10
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	2,907	150,096	72,612	0.48	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 10. Summary of pheasants bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.81	0.66	0.52	0.62	0.49	0.40	0.58	0.53
Cache	0.66	0.42	0.44	0.52	0.47	0.32	0.46	0.51
Davis	0.56	0.46	0.36	0.43	0.32	0.28	0.26	0.34
Morgan	0.44	0.05	0.18	0.70	1.71	0.40	(0.67)	(0.15)
Rich	(0.80)	(0.17)	0.00	(1.00)	(0.18)	(0.17)	0.00	0.00
Summit	(0.80)	0.00	0.00	(0.67)	0.00	(0.67)	0.00	(0.05)
Weber	0.69	0.55	0.39	0.40	0.34	0.29	0.34	0.37
REGIONAL TOTALS	0.68	0.53	0.42	0.49	0.40	0.32	0.42	0.44
Central Region								
Juab	0.86	0.70	0.64	0.66	0.49	0.38	0.39	0.57
Salt Lake	0.51	0.53	0.40	0.45	0.26	0.32	0.51	0.32
Sanpete	1.08	0.98	0.72	0.73	0.80	0.65	0.57	0.59
Tooele	0.58	0.60	0.44	0.56	0.31	0.29	0.36	0.44
Utah	0.82	0.65	0.64	0.68	0.64	0.58	0.53	0.55
Wasatch	(0.29)	(0.55)	(0.17)	(0.32)	(0.60)	(1.33)	0.00	0.68
REGIONAL TOTALS	0.79	0.69	0.60	0.65	0.5	0.54	0.51	0.53
Southern Region								
Beaver	0.66	0.52	0.56	0.37	0.41	0.39	0.68	0.55
Garfield	0.52	0.17	0.58	0.14	2.75	0.71	0.00	0.00
Iron	0.43	0.49	0.32	0.28	0.23	0.34	0.34	0.29
Kane	(0.50)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	0.92	0.88	0.77	0.68	0.60	0.66	0.74	0.59
Piute	0.66	0.56	0.83	0.67	0.42	1.12	(0.50)	(0.10)
Sevier	0.87	0.71	0.68	0.65	0.57	0.45	0.42	0.36
Washington	0.24	0.42	0.40	0.21	0.39	0.33	0.38	0.21
Wayne	0.25	1.22	0.33	0.24	0.63	(0.46)	0.00	(0.50)
REGIONAL TOTALS	0.79	0.73	0.67	0.60	0.77	0.52	0.56	0.45
Northeastern Region								
Daggett	(0.00)	(0.50)	0.00	(0.50)	(0.20)	0.00	0.00	0.00
Duchesne	0.99	0.88	0.84	0.87	0.90	0.62	0.78	0.66
Uintah	0.86	0.62	0.79	0.80	0.64	0.42	0.57	0.47
REGIONAL TOTALS	0.92	0.75	0.81	0.83	0.56	0.53	0.69	0.58
Southeastern Region								
Carbon	0.44	0.42	0.39	0.47	0.51	0.39	0.30	0.22
Emery	0.65	0.58	0.46	0.48	0.68	0.44	0.44	0.50
Grand	0.38	(2.00)	(0.50)	(0.86)	(0.20)	(0.33)	(0.33)	(0.48)
San Juan	2.50	0.40	0.58	1.64	1.50	(2.00)	0.00	(0.36)
REGIONAL TOTALS	0.57	0.51	0.44	0.53	0.63	0.43	0.39	0.39
Unknown Counties	0.47	1.00	0.40	0.63	0.54	0.60	0.00	0.00
STATE TOTALS	0.74	0.63	0.55	0.60	0.53	0.46	0.49	0.48

( )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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	10.02	9.84	8.16	9.00	8.30	7.65	12.70	11.67
Cache	4.92	3.61	4.07	4.83	5.09	4.01	7.53	9.68
Davis	7.84	7.34	5.80	6.12	5.48	4.80	3.96	4.38
Morgan	0.08	0.01	0.05	0.14	0.20	0.15	(0.21)	(0.07)
Rich	(0.04)	(0.01)	0.00	(0.02)	(0.03)	(0.03)	0.00	0.00
Summit	(0.13)	0.00	0.00	(0.04)	0.00	(0.05)	0.00	0.02
Weber	12.82	12.28	8.81	5.46	7.42	7.40	8.39	(8.03)
REGIONAL TOTALS	35.69	33.08	26.90	25.63	26.55	24.09	32.79	33.85
Central Region								
Juab	1.80	2.13	2.95	3.47	1.94	1.69	2.09	2.47
Salt Lake	4.64	5.28	4.90	4.48	2.18	2.67	4.30	2.23
Sanpete	9.11	10.25	10.32	9.53	10.63	10.76	7.92	5.94
Tooele	2.29	2.61	2.63	2.79	2.20	2.03	2.19	1.72
Utah	18.69	17.24	22.25	23.70	25.83	27.35	23.44	27.43
Wasatch	(0.06)	(0.09)	(0.02)	(0.12)	(0.15)	(0.51)	0.00	0.50
REGIONAL TOTALS	36.52	37.52	43.07	44.12	42.96	45.02	39.94	40.30
Southern Region								
Beaver	0.58	0.51	0.65	0.45	0.56	0.36	0.73	0.69
Garfield	0.12	0.04	0.13	0.02	0.18	0.13	0.00	0.00
Iron	0.35	0.72	0.47	0.32	0.25	0.62	0.50	0.55
Kane	(0.04)	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	6.93	7.85	8.30	6.29	6.03	7.99	8.71	7.62
Piute	0.24	0.13	0.18	0.24	0.18	0.74	(0.08)	(0.02)
Sevier	6.06	6.58	7.42	7.07	6.34	5.75	3.94	3.62
Washington	0.35	0.70	0.61	0.24	0.22	1.05	0.78	0.43
Wayne	0.01	0.16	0.04	0.16	0.08	(0.15)	0.00	(0.02)
REGIONAL TOTALS	14.74	16.70	17.80	14.82	13.88	16.80	14.73	12.96
Northeastern Region								
Daggett	0.00	(0.03)	0.00	(0.08)	(0.05)	0.00	0.00	0.00
Duchesne	4.64	5.04	4.11	5.26	6.34	5.86	5.71	5.73
Uintah	4.87	3.72	4.16	4.74	3.91	3.16	3.15	3.07
REGIONAL TOTALS	9.74	8.76	8.27	10.09	10.30	9.01	8.86	8.79
Southeastern Region								
Carbon	1.01	1.26	1.37	1.37	1.48	1.90	0.76	0.84
Emery	2.13	2.44	2.32	3.00	3.93	2.88	2.76	2.92
Grand	0.05	0.06	0.11	0.37	(0.01)	(0.08)	(0.16)	(0.24)
San Juan	0.05	0.03	0.13	0.47	0.10	(0.15)	0.00	(0.10)
REGIONAL TOTALS	3.25	3.78	3.93	5.22	5.53	5.01	3.68	4.10
Unknown Counties	0.30	0.16	0.04	0.10	0.75	0.08	0.00	0.00
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 hunted, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
1 Box Elder	9.26	9.38	8.60	8.67	8.91	8.77	10.67	10.66
2 Cache	5.53	5.39	5.16	5.59	5.69	5.68	7.98	9.18
3 Davis	10.33	10.00	8.92	8.43	8.95	7.85	7.32	6.31
4 Morgan	0.14	0.20	0.17	0.12	0.06	0.18	(0.15)	(0.23)
5 Rich	(0.04)	(0.05)	0.00	0.01	0.09	(0.07)	(0.01)	(0.02)
6 Summit	(0.12)	(0.04)	(0.01)	0.03	0.09	(0.04)	(0.01)	(0.23)
7 Weber	13.93	14.05	12.36	8.19	11.42	11.59	12.13	10.47
REGIONAL TOTALS	39.20	39.03	35.22	31.06	35.24	34.17	38.29	37.10
Central Region								
8 Juab	1.55	1.91	2.54	3.15	2.11	2.02	2.61	2.11
9 Salt Lake	7.79	6.31	6.72	5.91	4.54	3.84	4.11	3.41
10 Sanpete	6.28	6.55	7.86	7.76	7.04	7.55	6.81	4.87
11 Tooele	2.93	2.76	3.29	2.99	3.80	3.17	2.95	1.91
12 Utah	16.90	16.81	19.12	20.72	21.42	21.39	21.57	24.00
13 Wasatch	(0.17)	(0.10)	(0.06)	(0.23)	(0.13)	(0.18)	0.00	0.36
REGIONAL TOTALS	34.46	34.34	39.59	40.78	39.06	38.15	38.06	36.66
Southern Region								
14 Beaver	0.65	0.66	0.64	0.73	0.72	0.42	0.52	0.61
15 Garfield	0.17	0.17	0.12	0.08	0.03	0.08	(0.08)	0.01
16 Iron	0.61	0.91	0.80	0.70	0.58	0.83	0.71	0.92
17 Kane	(0.06)	(0.02)	(0.02)	0.00	0.00	(0.01)	0.00	0.00
18 Millard	5.61	5.60	5.95	5.49	5.29	5.52	5.74	6.27
19 Piute	0.28	0.15	0.12	0.22	0.23	0.30	(0.08)	(0.12)
20 Sevier	5.17	5.83	6.00	6.48	5.91	5.79	4.58	4.86
21 Washington	1.10	1.04	0.84	0.71	0.29	1.47	1.02	1.01
22 Wayne	0.31	0.08	0.06	0.41	0.07	(0.15)	(0.06)	(0.02)
REGIONAL TOTALS	13.89	14.39	14.56	14.85	13.16	14.58	12.80	13.82
Northeastern Region								
23 Daggett	(0.06)	(0.04)	(0.02)	(0.09)	(0.13)	(0.01)	(0.01)	0.00
24 Duchesne	3.48	3.58	2.69	3.61	3.74	4.27	3.55	4.22
25 Uintah	4.24	3.77	2.91	3.56	3.22	3.41	2.71	3.16
REGIONAL TOTALS	7.72	7.34	5.62	7.27	7.10	7.70	6.28	7.38
Southeastern Region								
26 Carbon	1.97	1.71	1.90	1.92	1.76	1.54	2.21	1.87
27 Emery	2.51	2.43	2.66	2.79	3.71	3.05	2.99	2.80
28 Grand	0.04	0.10	0.02	0.12	0.25	0.04	(0.11)	(0.24)
29 San Juan	0.02	0.05	0.12	0.17	0.03	(0.04)	(0.01)	(0.13)
REGIONAL TOTALS	4.25	4.63	4.94	5.91	4.67	5.34	4.57	5.04
Unknown Counties	0.32	0.47	0.25	0.05	0.09	0.74	0.06	0.00
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, 1948-91.

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
Totals (1948-91)	3,454,762	9,314,471	9,562,186	–	–
Averages (1948-90)	79,348	214,927	224,097	0.97	2.66

Table 14. Pheasant field bag check summary, 1991.

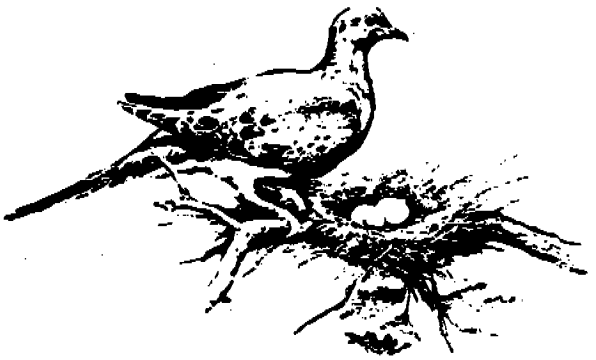
Region and County	All Hunts					Complete Hunts					
	Total Parties	Total Hunters	Total Hours	Total Birds	Birds/ 100 Hr	Complete Hunts	Total Hunters	Total Hours	Total Birds	Birds/ 100 Hr	Birds/ Hunter
Northern Region											
Box Elder	27	67	76	26	34	1	1	1	1	100	1.00
Cache	33	94	105	30	29	3	7	10	4	40	0.57
Davis	15	27	25	1	4	8	16	12	0	–	0.00
Morgan	–	–	–	–	–	–	–	–	–	–	–
Rich	–	–	–	–	–	–	–	–	–	–	–
Summit	–	–	–	–	–	–	–	–	–	–	–
Weber	23	45	70	10	14	4	3	11	3	27	1.00
REGIONAL TOTALS	98	233	276	67	24	16	27	34	8	24	0.30
Central Region											
Juab	–	48	33	11	33	–	–	–	–	–	–
Salt Lake	–	–	–	–	–	–	–	–	–	–	–
Sanpete	17	50	174	27	16	6	19	117	20	17	1.05
Tooele	–	–	–	–	–	–	–	–	–	–	–
Utah	130	259	600	67	11	51	88	231	30	13	0.34
Wasatch	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	147	357	807	105	13	57	107	348	50	14	0.47
Southern Region											
Beaver	–	–	–	–	–	–	–	–	–	–	–
Garfield	–	–	–	–	–	–	–	–	–	–	–
Iron	–	–	–	–	–	–	–	–	–	–	–
Kane	–	–	–	–	–	–	–	–	–	–	–
Millard	–	–	–	–	–	–	–	–	–	–	–
Piute	–	–	–	–	–	–	–	–	–	–	–
Sevier	–	–	–	–	–	–	–	–	–	–	–
Washington	–	–	–	–	–	–	–	–	–	–	–
Wayne	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–
Northeastern Region											
Daggett	–	–	–	–	–	–	–	–	–	–	–
Duchesne	23	98	311	52	17	7	26	97	13	13	0.50
Uintah	21	68	186	22	12	1	1	2	0	–	–
REGIONAL TOTALS	44	166	497	74	15	8	27	99	13	13	0.48
Southeastern Region											
Carbon	–	–	–	–	–	–	–	–	–	–	–
Emery	43	100	161	33	20	28	56	89	20	22	0.36
Grand	–	–	–	–	–	–	–	–	–	–	–
San Juan	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	43	100	161	33	20	28	56	89	20	22	0.36
STATE TOTALS	332	856	1,741	279	16	109	217	570	91	16	0.42

Table 15. Pheasant hunter success trend as determined by field check, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	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	5	0.14	11	0.29	7	0.21	8	0.22	18	0.27	100	1.00
Cache	--	--	31	1.25	2	0.08	4	0.10	7	0.23	40	0.57
Davis	6	0.19	18	0.80	8	0.20	2	0.06	8	0.19	--	0.00
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	12	0.21	9	0.13	11	0.21	9	0.12	--	--	27	1.00
REGIONAL TOTALS	7	0.16	11	0.23	28	0.20	8	0.18	33	0.27	24	0.30
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	13	0.38	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	17	1.05
Tooele	--	--	--	--	--	--	8	0.26	--	--	--	--
Utah	28	0.74	24	0.68	16	0.50	24	0.53	19	0.40	13	0.34
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	28	0.12	24	0.11	16	0.08	19	0.46	17	0.40	14	0.47
Southern Region												
Beaver	--	--	6	0.18	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	10	0.48	9	0.50	10	0.33	4	0.24	8	0.48	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	14	0.65	6	1.67	56	0.56	--	--	--	--	--	--
Washington	6	0.07	33	0.50	17	0.22	38	0.71	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	11	0.51	12	0.40	12	0.37	4	0.24	8	0.05	--	--
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	38	1.50	13	0.50	27	1.96	16	0.85	16	0.84	13	0.50
Uintah	17	0.50	--	--	8	0.53	4	0.15	10	0.43	--	--
REGIONAL TOTALS	24	0.79	13	0.50	20	1.41	14	0.68	14	0.65	13	0.48
Southeastern Region												
Carbon	7	0.33	0	0.00	25	0.71	25	0.50	--	--	--	--
Emery	14	0.35	6	0.33		0.43	26	0.63	9	0.19	22	0.36
Grand	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	13	0.35	5	0.32	25	0.71	26	0.53	9	0.19	22	0.36
STATE TOTALS	12	0.39	13	0.32	11	0.35	10	0.30	12	0.36	16	0.42

MIGRATORY UPLAND GAME BIRDS

SUMMARY



Mourning Doves

The breeding density index increased slightly in 1991, and remained well below average.

Harvest statistics derived from the questionnaire indicated a decrease in number of hunters and harvest compared to 1990. Hunter success for the season decreased slightly as well.

Field bag checks indicated a decrease in hunter success on opening day. Hunters who participated hunted more hours than the previous year.

Aging of wings indicated the juvenile per 100 adult ratio decreased to 116 compared to 127 in 1990. Juvenile per 100 adult ratio remains 2 percent below the long-term average.

Band-tailed Pigeons

A band-tailed pigeon hunting permit was required again in 1991 to obtain mailing addresses for a questionnaire. Nineteen hunters purchased permits and 15 went afield. A total of 31 pigeons were harvested. Hunter interest remains low.

MOURNING DOVE

Call Count Survey

Results of the 1991 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 1991 survey to 1990 and the average for the period 1968-1990:

	1991	Percent change from 1990	Average
Average doves heard per route	10	+9	-22
Average calls heard per route	--	--	--
Average doves seen per route	8	-35	-47

In 1991, the U.S. Fish and Wildlife Service eliminated the collection of total calls heard per route.

Coo count data indicated slightly increased breeding activity in late May compared to 1990, but was 22 percent below the long-term average of doves heard per route.

Harvest

Hunter Questionnaire

Information obtained from the hunter questionnaire for 1991 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 1991 compared to 1990 and the previous 40-year average:

	1991	Percent change from 1990	Average
Mourning dove hunters	22,632	0	+2
Mourning doves harvested	178,853	-10	-14
Hunter-days afield	78,405	-2	+14
Mourning doves per hunter-day	2.28	-8	-32
Mourning doves per hunter	7.90	-10	-13

Dove hunter success was predicted to be similar to 1990 due to the second year of no significant change in the spring dove call count index and summer drought. Hunter success dropped slightly from 1990. Total harvest decreased 10 percent compared to 1990. Numbers of dove hunters, hunter-days afield and doves per hunter-day all decrease slightly. August temperatures and precipitation were above normal in 1991.

Long-term harvest trends are depicted in Figure 2.

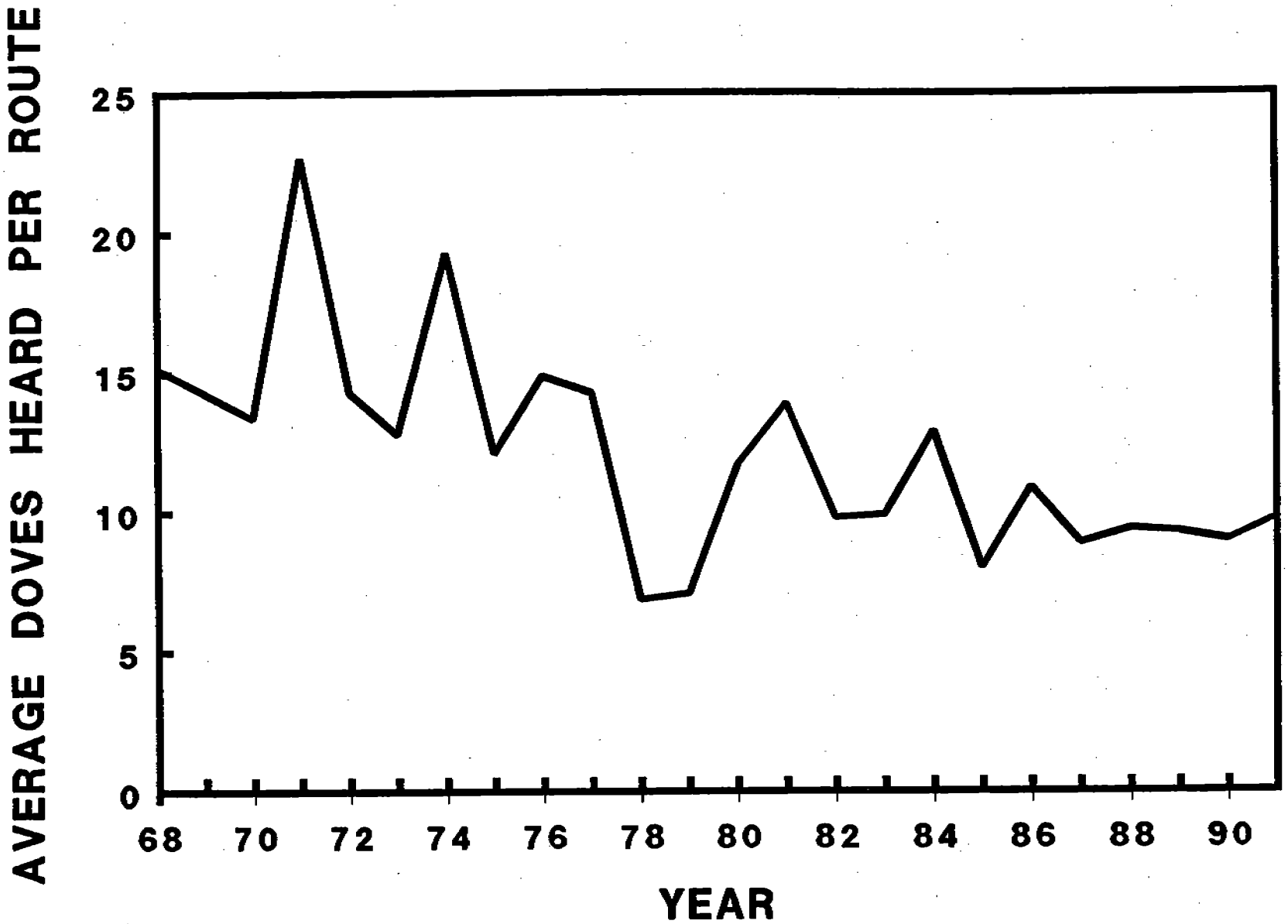


Figure 1. Mourning dove breeding density index trend, 1968-91.

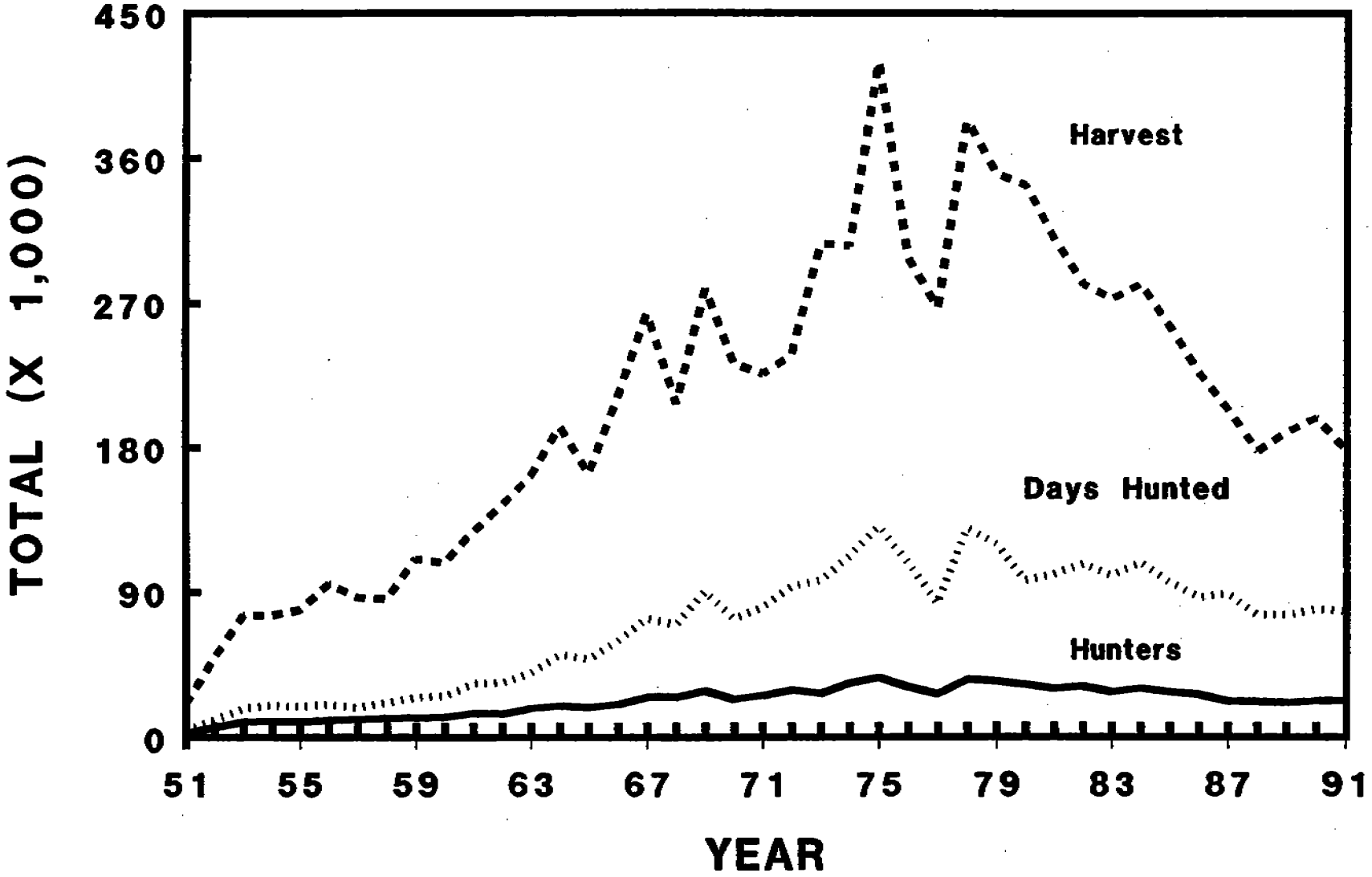


Figure 2. Statewide trends of mourning dove harvest statistics, 1951-91.

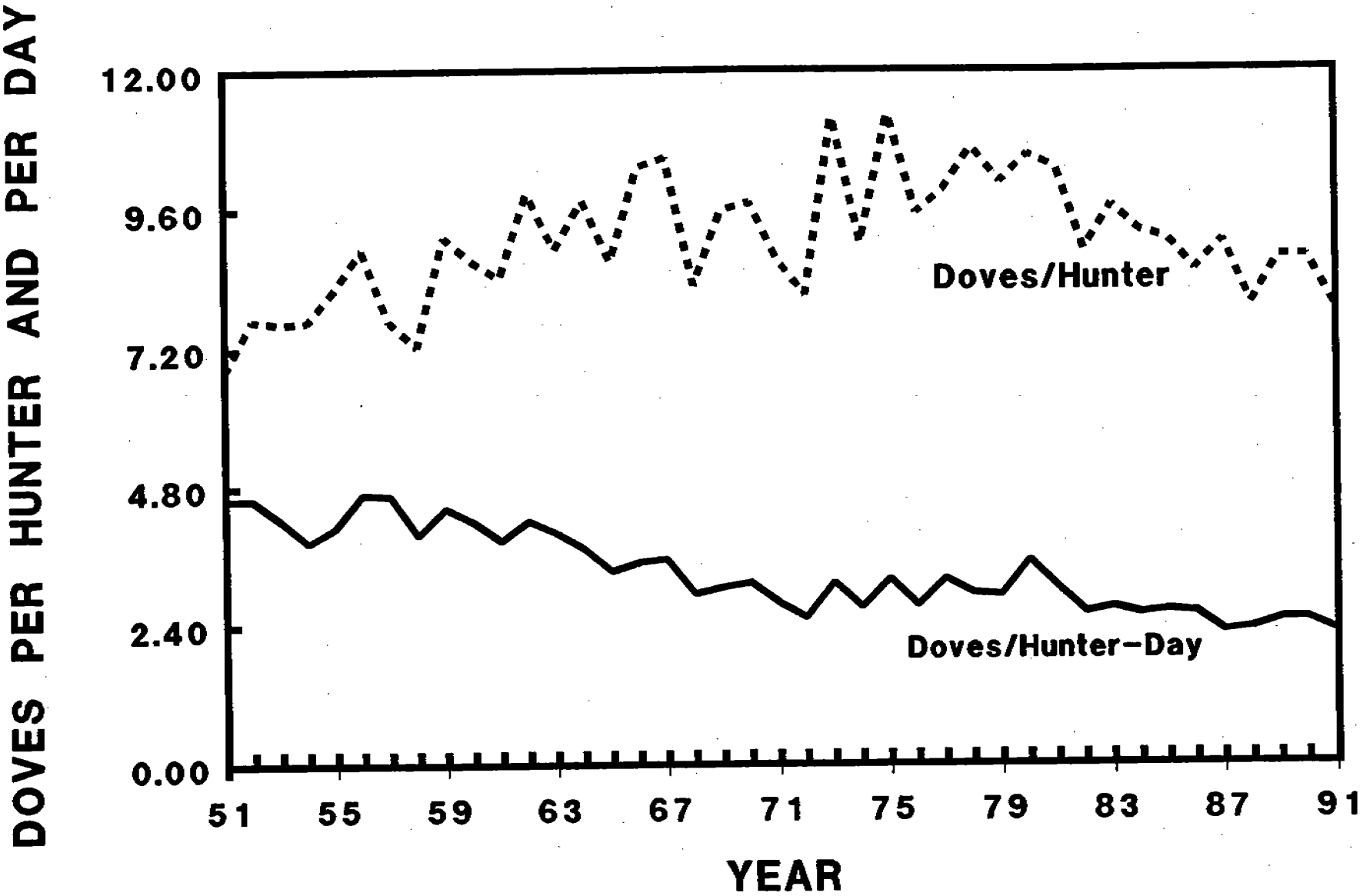
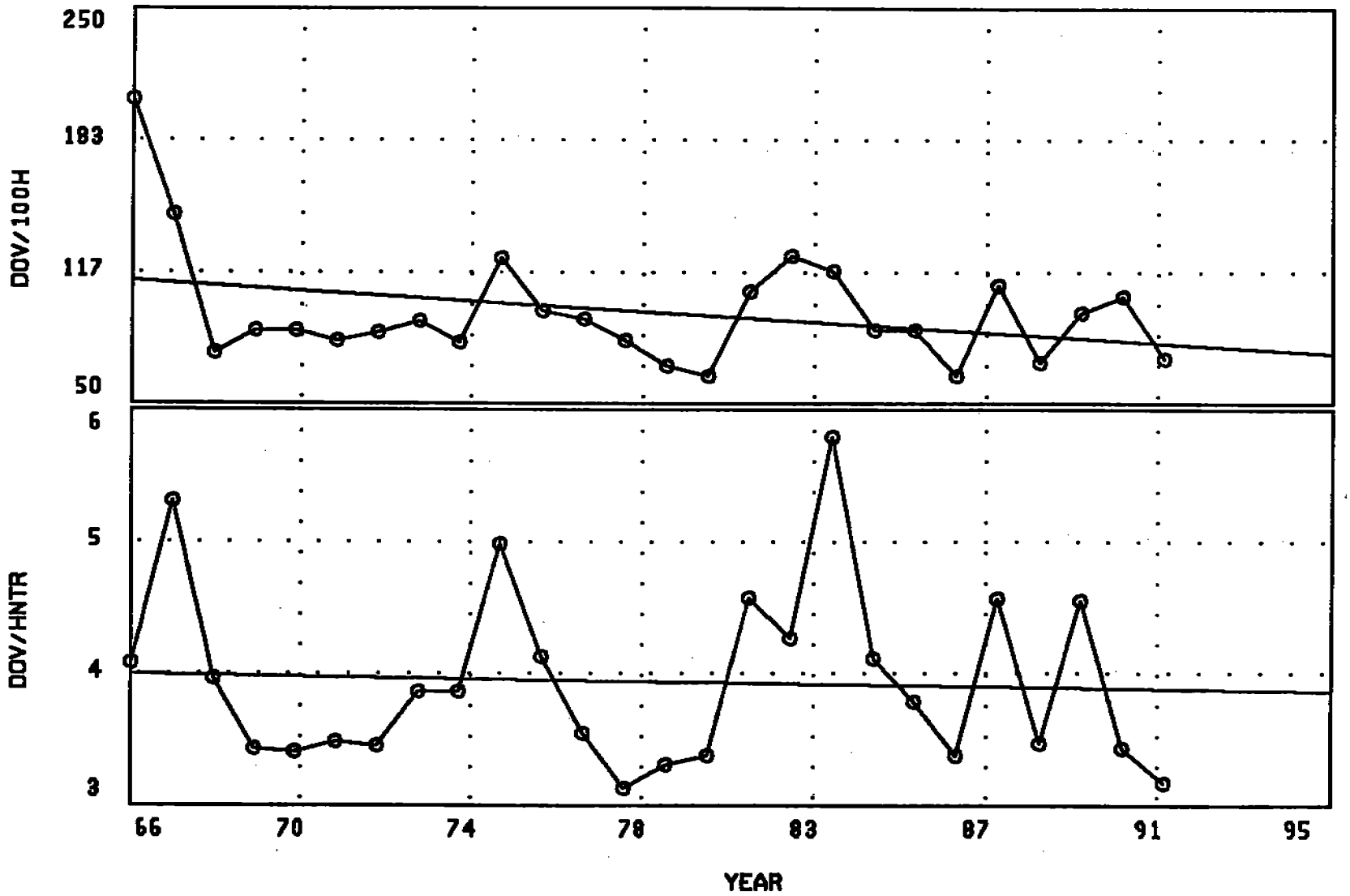


Figure 3. Statewide trends of mourning dove hunter success rates, 1951-91.

FIGURE4. MOURNING DOVE FIELD BAG CHECK INDICES, 1966-91.



Field Bag Checks

A summary of field bag check data for 1991 is shown in Table 8. Hunter success trends determined via this method are shown in Table 9. Results of the 1991 survey compared to 1990 and the 10-year average (1981-90) follow:

	1991	Percent change from 1990	Percent change from Average
Total hunters checked	1,027	-23	-39
Total hours hunted	3,800	-21	-40
Doves per hunter (complete hunts)	2.70	-10	-31
Doves bagged per 100 hours (complete hunts)	73	-30	-21
Average hours per hunter-day (complete hunts)	3.70	+28	-6
Hours hunted per dove bagged (complete hunts)	1.37	+37	+31

This year's hunt opened on Monday, September 2, 1991. Hunter participation could have been off a bit because of the weekday opening. Field bag checks indicated a decrease in hunter success. The total number of hunters checked was down 23 percent from 1990. Dove hunters spent more time afield per hunter-day than in 1990, and slightly 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 1981 through 1991 is contained in Table 10. Hatching dates for immature doves harvested in the Northern Region since 1982 are shown in Table 11. Hatching dates for immature doves harvested in Utah in 1991 are shown in Table 12.

Following is a comparison of data collected in 1991 compared to 1990 and long-term averages (1966-90):

	1991	Percent change from 1990	Percent change from Average
Sample size	1,855	-37	-42
Immatures/100 adults	116	-10	-2
Percent of immatures hatched on: (N. Region)			
August 3 or later	--	--	--
July 25 or later	--	--	--
Before July 25	--	--	--

Sample size decreased 37%. The 116 immatures per 100 adults in the harvest was down 10 percent from the previous year and 2 percent below the 25-year average.

Table 1. Summary of the mourning dove call-count survey for 1991.

Region and County	Route Number	Total Doves Heard / Route	Total Doves Seen / Route
Northern Region			
Box Elder	R1500	1	16
Summit	R1020	3	0
REGIONAL TOTALS		4	16
Central Region			
Juab	R2830	38	10
REGIONAL TOTALS		38	10
Southern Region			
Beaver	R3820	ROUTE NOT RUN	
Garfield	R1090	0	0
Iron	R4000	15	5
Millard	R3640	8	0
Sevier-Sanpete	R0370	2	13
Washington	R4310	14	7
Wayne-Sevier	R0660	0	0
REGIONAL TOTALS		39	25
Northeastern Region			
Duchesne	R0080	7	5
Unitah	R0220	3	1
REGIONAL TOTALS		10	6
Southeastern Region			
Emery	R0540	5	17
San Juan	R1171	38	31
San Juan	R1450	3	2
REGIONAL TOTALS		46	50
STATE TOTALS		137	107
STATE AVERAGES		10	8
PERCENT CHANGE (from previous year)		+9	-35

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, 1977-91.

Region and County	Route Number	Number of Doves Heard Per Route														
		1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Northern Region																
Box Elder	R1500	4	2	9	4	8	–	1	0	0	1	2	0	0	1	1
Summit	R1020	10	5	6	5	4	5	–	1	4	5	3	5	3	3	3
REGIONAL TOTALS		14	7	15	9	12	5	1	1	4	6	5	5	3	4	4
Central Region																
Juab	R2830	25	31	15	31	22	9	25	19	20	19	16	23	13	36	38
REGIONAL TOTALS		25	31	15	31	22	9	25	19	20	19	16	23	13	36	38
Southern Region																
Beaver	R3820	0	0	5	9	7	13	3	6	6	4	17	13	14	9	–
Garfield	R1090	1	0	0	0	9	2	3	15	3	1	1	0	16	0	0
Iron	R4000	27	12	14	40	36	21	19	31	41	26	23	20	10	12	15
Millard	R3640	29	8	4	2	10	9	5	14	2	2	3	5	4	5	8
Sevier-Sanpete	R0370	2	0	0	3	0	0	3	5	4	4	3	3	2	6	2
Washington	R4310	15	1	4	3	6	0	14	1	0	6	7	1	6	12	14
Wayne-Sevier	R0660	8	1	2	5	14	4	–	17	3	2	0	3	7	5	0
REGIONAL TOTALS		82	22	29	62	82	49	47	89	59	45	54	45	59	49	39
Northeastern Region																
Duchesne	R0080	14	2	2	1	13	7	0	1	8	3	4	8	13	11	7
Unitah	R0220	7	4	–	49	19	1	9	10	5	20	12	6	0	2	3
REGIONAL TOTALS		21	6	2	50	32	8	9	11	13	23	16	14	13	13	10
Southeastern Region																
Emery	R0540	4	10	9	7	22	7	11	10	3	10	11	15	8	2	5
San Juan	R1170	67	24	28	14	38	26	30	57	25	60	31	37	43	31	38
San Juan	R1450	1	3	1	3	0	24	5	7	2	0	1	2	1	0	3
REGIONAL TOTALS		72	37	38	24	60	57	46	74	30	70	43	54	52	33	46
STATE TOTALS		214	103	99	176	208	128	128	194	126	163	134	141	140	135	137
STATE AVERAGES		14.27	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
PERCENT CHANGE (from previous year)		-4	-52	-4	78	18	-38	0	52	-35	29	-18	5	-1	-4	1

Table 3. Summary of mourning dove hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	161	7,550	17,170	2.27	9.63	9.60
CACHE	78	5,044	9,915	1.97	6.43	5.54
DAVIS	34	2,418	4,279	1.77	3.08	2.39
MORGAN	15	504	1,165	2.31	0.64	0.65
RICH	11	504	1,739	3.45	0.64	0.97
SUMMIT	3	156	278	1.78	0.20	0.16
WEBER	51	3,287	4,279	1.30	4.19	2.39
REGIONAL TOTALS	353	19,466	38,828	1.99	24.83	21.71
CENTRAL REGION						
JUAB	134	4,714	15,709	3.33	6.01	8.78
SALT LAKE	84	4,418	8,941	2.02	5.64	5.00
SANPETE	60	3,218	8,663	2.69	4.10	4.84
TOOELE	126	6,697	15,308	2.29	8.54	8.56
UTAH	277	15,482	29,278	1.89	19.75	16.37
WASATCH	17	800	1,687	2.11	1.02	0.94
REGIONAL TOTALS	698	35,332	79,588	2.25	45.06	44.50
SOUTHERN REGION						
BEAVER	19	1,043	3,461	3.32	1.33	1.94
GARFIELD	5	260	626	2.40	0.33	0.35
IRON	32	1,965	5,497	2.80	2.51	3.07
KANE	6	539	1,635	3.03	0.69	0.91
MILLARD	112	5,305	16,613	3.13	6.77	9.29
PIUTE	9	487	1,217	2.50	0.62	0.68
SEVIER	58	4,105	8,576	2.09	5.24	4.80
WASHINGTON	45	2,539	9,220	3.63	3.24	5.16
WAYNE	2	69	52	0.75	0.09	0.03
REGIONAL TOTALS	288	16,317	46,900	2.87	20.81	26.22
NORTHEASTERN REGION						
DAGGETT	1	17	17	1.00	0.02	0.01
DUCHESNE	29	2,104	4,662	2.21	2.68	2.61
UINTAH	32	2,035	2,157	1.06	2.60	1.21
REGIONAL TOTALS	62	4,157	6,836	1.64	5.30	3.82
SOUTHEASTERN REGION						
CARBON	24	1,026	2,209	2.15	1.31	1.24
EMERY	24	1,235	2,070	1.68	1.58	1.16
GRAND	5	278	313	1.13	0.36	0.18
SAN JUAN	9	591	2,104	3.56	0.75	1.18
REGIONAL TOTALS	62	3,131	6,697	2.14	3.99	3.74
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	1,463	78,405	178,853	2.28	100.00	100.00

* Total hunter trips from questionnaire returns.

Table 4. Summary of mourning doves bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	3.19	2.18	3.18	3.46	3.41	2.83	2.73	2.27
Cache	2.05	2.34	1.92	1.79	1.92	2.24	1.67	1.97
Davis	1.66	1.53	1.24	1.18	1.51	1.31	1.53	1.77
Morgan	1.91	1.72	2.04	3.00	2.36	1.03	1.73	2.31
Rich	6.69	2.28	3.72	0.00	2.63	1.26	1.95	3.45
Summit	3.89	1.92	1.08	2.50	2.19	1.61	7.00	1.78
Weber	1.55	1.68	1.63	1.15	1.21	1.88	1.48	1.30
REGIONAL TOTALS	2.27	1.92	2.26	2.19	2.09	2.20	2.02	1.99
Central Region								
Juab	4.44	5.16	4.54	2.95	3.25	4.45	3.70	3.33
Salt Lake	1.95	1.91	1.95	1.36	1.84	2.18	2.37	2.02
Sanpete	2.98	2.71	3.51	1.88	2.75	2.40	3.06	2.69
Tooele	2.90	2.55	2.87	2.17	2.31	2.88	1.90	2.29
Utah	2.21	2.50	2.14	2.30	1.97	2.08	2.05	1.89
Wasatch	2.20	1.50	1.97	0.82	1.20	1.22	2.42	2.11
REGIONAL TOTALS	2.60	2.71	2.72	2.11	2.23	2.55	2.41	2.25
Southern Region								
Beaver	3.45	3.43	2.02	1.72	3.50	4.35	1.71	3.32
Garfield	1.80	0.60	0.20	1.67	3.86	2.27	2.34	2.40
Iron	3.07	4.99	3.54	3.10	3.71	2.91	4.38	2.80
Kane	5.76	2.54	1.06	3.06	1.71	3.11	1.00	3.03
Millard	4.25	4.30	3.58	2.83	3.01	3.54	4.42	3.13
Piute	1.94	1.60	1.62	1.67	4.17	0.00	1.45	2.50
Sevier	2.11	2.33	1.82	2.15	2.03	2.70	2.18	2.09
Washington	2.62	3.17	3.90	2.68	3.37	2.12	2.81	3.63
Wayne	2.00	2.47	2.57	5.65	2.29	3.53	0.61	0.75
REGIONAL TOTALS	3.22	3.53	2.85	2.62	2.90	3.01	3.20	2.87
Northeastern Region								
Daggett	1.48	0.00	1.20	0.83	0.00	0.25	2.00	1.00
Duchesne	1.83	2.50	2.70	2.46	2.83	1.42	1.85	2.21
Uintah	2.61	2.39	1.91	2.82	2.68	2.33	3.17	1.06
REGIONAL TOTALS	2.20	2.39	2.05	2.55	2.68	1.82	2.46	1.64
Southeastern Region								
Carbon	2.13	2.76	2.76	1.94	2.06	0.75	1.18	2.15
Emery	2.24	3.28	1.62	2.41	2.87	1.77	2.04	1.68
Grand	2.46	2.00	4.28	2.41	2.00	2.18	4.04	1.13
San Juan	3.51	3.38	3.26	4.08	2.91	4.22	1.69	3.56
REGIONAL TOTALS	2.41	3.01	2.54	2.76	2.56	1.85	2.07	2.14
Unknown Counties	0.00	0.00	0.00	1.93	1.30	2.86	0.00	0.00
STATE TOTALS	2.71	2.59	2.65	2.61	2.28	2.49	2.49	2.28

Table 5. Percentage distribution of mourning dove harvest by region and county, 1984-91.

Region and County	Year							
	1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	9.96	5.48	10.36	11.51	10.31	12.06	9.95	9.60
Cache	4.71	3.85	2.46	2.99	2.94	4.87	3.34	5.54
Davis	3.35	2.91	2.08	1.93	3.27	2.01	2.57	2.39
Morgan	0.30	0.76	0.44	0.18	0.61	0.44	0.59	0.65
Rich	0.77	0.55	1.08	0.00	0.66	0.26	0.38	0.97
Summit	0.25	0.84	0.12	0.18	0.65	0.32	0.51	0.16
Weber	3.57	4.21	2.71	2.12	3.67	3.54	3.54	2.39
REGIONAL TOTALS	22.92	18.61	19.26	18.92	22.15	23.50	20.88	21.71
Central Region								
Juab	9.42	10.97	11.09	8.36	8.09	9.79	9.45	8.78
Salt Lake	7.90	5.59	5.50	5.39	4.37	3.56	5.71	5.00
Sanpete	3.49	4.08	5.54	2.88	4.30	4.34	3.23	4.84
Tooele	8.67	7.42	11.39	8.55	10.92	8.58	6.37	8.56
Utah	13.94	17.75	14.38	20.06	16.17	16.27	12.83	16.37
Wasatch	0.86	0.98	0.52	0.61	0.90	0.54	1.08	0.94
REGIONAL TOTALS	44.27	46.79	48.42	45.87	44.78	43.08	38.67	44.50
Southern Region								
Beaver	2.31	1.55	1.82	1.67	1.76	2.28	1.29	1.94
Garfield	0.26	0.02	0.01	0.12	0.25	1.09	0.92	0.35
Iron	1.68	4.05	3.82	3.24	3.22	3.07	6.20	3.07
Kane	1.41	0.28	0.30	0.66	0.33	0.64	0.07	0.91
Millard	10.20	10.25	9.42	9.80	11.73	9.92	13.35	9.29
Piute	0.45	0.56	0.19	0.24	0.46	0.00	0.57	0.68
Sevier	3.98	3.24	3.50	4.67	3.59	6.11	4.05	4.80
Washington	2.37	2.44	3.26	2.28	1.10	2.62	4.99	5.16
Wayne	0.11	0.35	0.33	1.35	0.14	0.73	0.11	0.03
REGIONAL TOTALS	22.77	22.75	22.64	24.05	22.63	26.46	31.57	26.22
Northeastern Region								
Daggett	0.42	0.00	0.16	0.12	0.00	0.02	0.06	0.01
Duchesne	0.99	1.42	1.05	0.76	1.27	0.85	1.62	2.61
Uintah	2.66	2.78	1.92	2.81	2.46	1.70	2.46	1.21
REGIONAL TOTALS	4.07	4.20	3.14	3.70	3.73	2.57	4.15	3.82
Southeastern Region								
Carbon	2.39	2.93	1.65	0.74	1.67	0.44	0.41	1.24
Emery	1.45	3.35	1.83	2.66	3.70	2.23	2.85	1.16
Grand	0.88	0.27	1.24	0.84	0.18	0.26	0.96	0.18
San Juan	1.24	1.10	1.81	2.54	0.59	1.24	0.51	1.18
REGIONAL TOTALS	5.97	7.65	6.54	6.80	6.16	4.17	4.74	3.74
Unknown counties	0.00	0.00	0.00	0.64	0.53	0.22	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	8.10	6.68	8.50	7.59	7.07	10.62	9.07	9.63
Cache	5.97	4.37	3.34	3.81	3.59	5.43	4.96	6.43
Davis	5.24	5.04	4.38	3.75	5.08	3.80	4.19	3.08
Morgan	0.41	1.18	0.57	0.13	0.61	1.06	0.85	0.64
Rich	0.30	0.64	0.76	0.00	0.59	0.52	0.49	0.64
Summit	0.17	1.15	0.28	0.16	0.70	0.49	0.18	0.20
Weber	5.97	6.66	4.35	4.22	7.11	4.70	5.94	4.19
REGIONAL TOTALS	26.16	25.74	22.17	19.69	24.77	26.62	25.67	24.83
Central Region								
Juab	5.50	5.64	6.37	6.47	5.82	5.49	6.35	6.01
Salt Lake	10.51	7.75	7.36	9.02	5.52	4.07	5.99	5.64
Sanpete	3.04	4.00	4.12	3.51	3.65	4.51	2.62	4.10
Tooele	7.76	7.73	10.36	8.99	11.08	7.41	8.33	8.54
Utah	16.38	18.88	17.53	19.93	19.18	19.53	15.52	19.75
Wasatch	1.01	1.73	0.69	1.70	1.77	1.11	1.11	1.02
REGIONAL TOTALS	44.21	45.73	46.43	49.64	47.09	42.12	39.91	45.06
Southern Region								
Beaver	1.74	1.20	2.34	2.22	1.18	1.30	1.88	1.33
Garfield	0.37	0.11	0.12	0.16	0.15	1.20	0.98	0.33
Iron	1.42	2.15	2.82	2.38	2.03	2.63	3.52	2.51
Kane	0.63	0.29	0.73	0.49	0.46	0.52	0.18	0.69
Millard	6.23	6.33	6.86	7.89	9.11	6.98	7.50	6.77
Piute	0.60	0.93	0.31	0.32	0.26	0.05	0.98	0.62
Sevier	4.89	3.69	4.99	4.96	4.14	5.65	4.63	5.24
Washington	2.35	2.04	2.18	1.94	0.76	3.07	4.42	3.24
Wayne	0.15	0.38	0.33	0.54	0.15	0.52	0.46	0.09
REGIONAL TOTALS	18.38	17.12	20.68	20.95	18.26	21.92	24.54	20.81
Northeastern Region								
Daggett	0.75	0.07	0.35	0.32	0.06	0.22	0.08	0.02
Duchesne	1.40	1.51	1.02	0.71	1.05	1.49	2.18	2.68
Uintah	2.65	3.09	2.63	2.27	2.14	1.82	1.93	2.60
REGIONAL TOTAL	4.80	4.66	4.00	3.31	3.26	3.53	4.19	5.30
Southeastern Region								
Carbon	2.91	2.82	1.56	0.87	1.90	1.44	0.87	1.31
Emery	1.68	2.71	2.96	2.52	3.02	3.15	3.47	1.58
Grand	0.93	0.35	0.76	0.79	0.21	0.30	0.59	0.36
San Juan	0.91	0.87	1.44	1.42	0.48	0.73	0.75	0.75
REGIONAL TOTALS	6.44	6.75	6.72	5.62	5.62	5.62	5.68	3.99
Unknown counties	0.02	0.00	0.00	0.76	0.96	0.19	0.00	0.00
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 7. Statewide summary of mourning dove harvest statistics, 1951-91.

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
Totals (1951-91)	911,299	8,502,704	2,822,482	–	–
Averages (1951-90)	22,217	208,096	68,602	3.36	9.08

* Estimated.

**Bag limit increased to 15.

***Bag limit reduced to 10.

Table 8. Mourning dove field bag check summary, 1991.

Region and County	All Hunts					Complete 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	52	147	142	291	205	7	15	17	34	200	2.27
Cache	6	12	8	16	200	--	--	--	--	--	--
Davis	14	28	30	41	137	6	16	19	30	158	1.88
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	12	20	25	30	120	5	11	15	11	73	1.00
REGIONAL TOTALS	84	207	205	378	184	18	42	51	75	147	1.79
Central Region											
Juab	143	312	1,142	614	54	88	183	711	456	64	2.49
Salt Lake	10	30	106	28	26	3	8	28	4	14	0.50
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	189	427	1,574	1,076	68	131	302	1,141	865	76	2.86
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	342	769	2,822	1,718	61	222	493	1,880	1,325	70	2.69
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Southeastern Region											
Carbon	3	5	6	0	--	--	--	--	--	--	--
Emery	12	20	33	93	281	3	6	15	45	300	7.50
Grand	--	--	--	--	--	--	--	--	--	--	--
San Juan	4	7	12	13	108	1	1	2	5	250	5.00
REGIONAL TOTALS	19	32	51	106	208	4	7	17	50	294	7.14
LEHI CHECK STATION	189	427	1,574	1,076	68	131	302	1,141	865	76	2.86
NEPHI CHECK STATION	143	312	1,142	614	54	88	183	711	456	64	2.49
THIOKOL CHECK STATION	83	189	831	370	45	--	--	--	--	--	--
STATE TOTALS	860	1,936	6,625	4,262	64	463	1,027	3,800	2,771	73	2.70

Table 9. Mourning dove hunter success trend as determined by field bag checks, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	131	5.98	143	5.52	81	3.21	110	4.55	38	2.29	200	2.27
Cache	163	5.33	–	–	–	–	–	–	–	–	–	–
Davis	81	2.74	64	1.20	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	129	5.72	140	5.20	80	3.10	109	4.42	42	1.93	147	1.79
Central Region												
Juab	68	4.30	–	–	–	–	133	6.39	116	4.60	64	2.49
Salt Lake	333	3.33	–	–	–	–	37	1.30	–	–	14	0.50
Sanpete	20	0.56	–	–	–	–	–	–	–	–	–	–
Tooele	241	7.09	–	–	–	–	–	–	285	10.00	–	–
Utah	53	1.80	–	–	–	–	91	3.47	65	2.43	76	2.86
Wasatch	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	75	3.84	–	–	–	–	108	4.28	114	2.95	70	2.69
Southern Region												
Beaver	224	9.25	131	5.75	–	–	–	–	–	–	–	–
Garfield	–	–	–	–	–	–	–	–	–	–	–	–
Iron	500	10.00	550	11.00	167	2.50	467	1.40	–	–	–	–
Kane	180	5.65	–	–	–	–	–	–	–	–	–	–
Millard	172	6.20	64	2.73	175	1.08	–	–	104	7.78	–	–
Piute	–	–	–	–	–	–	–	–	–	–	–	–
Sevier	–	–	–	–	333	10.00	–	–	–	–	–	–
Washington	343	6.86	–	–	206	5.54	369	1.20	–	–	–	–
Wayne	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	203	6.41	126	5.23	213	3.68	444	1.33	104	7.78	–	–
Northeastern Region												
Daggett	59	1.11	–	–	–	–	–	–	–	–	–	–
Duchesne	100	1.00	–	–	–	–	–	–	–	–	–	–
Uintah	124	2.37	111	3.33	111	3.33	214	8.57	–	–	–	–
REGIONAL TOTALS	87	1.61	111	3.33	111	3.33	214	8.57	–	–	–	–
Southeastern Region												
Carbon	177	0.37	–	–	85	2.80	–	–	–	–	–	–
Emery	233	3.50	641	7.05	139	4.00	–	–	127	4.00	300	7.50
Grand	–	–	–	–	–	–	92	2.00	–	–	–	–
San Juan	261	5.64	397	7.38	200	4.00	–	–	129	6.00	250	5.00
REGIONAL TOTALS	215	4.43	485	7.22	113	3.40	92	2.00	127	4.90	294	7.14
LEHI CHECK STATION	50	2.39	78	3.23	50	2.19	91	3.47	65	2.43	76	2.86
NEPHI CHECK STATION	37	1.68	114	5.09	89	5.12	133	6.39	104	7.78	64	2.49
THIOKOL CHECK STATION											–	–
STATE TOTALS	64	2.94	110	4.33	71	3.05	110	4.31	104	3.00	73	2.70

Table 10. Age composition (Immatures/100 Adults) of Mourning Doves Harvested, 1981-91.

Region and County	1981		1982		1983		1984		1985		1986		1987		1988		1989		1990		1991		1981-90 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)
Northern Region																								
Box Elder	107	700	124	716	143	515	135	1,172	146	137	131	1,086	128	770	–	–	82	435	239	487	–	–		
Cache	–	–	–	–	67	5	–	–	181	45	–	–	325	17	–	–	–	–	–	–	–	–		
Davis	–	–	107	56	55	17	121	42	85	74	–	–	–	–	–	–	–	–	–	–	–	–		
Morgan	–	–	–	–	188	46	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Rich	–	–	4,200	43	–	–	53	23	600	7	–	–	–	–	–	–	–	–	–	–	–	–		
Summit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Weber	–	–	–	–	138	34	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
REGIONAL TOTALS	107	700	135	815	143	617	133	1,237	138	263	131	1,086	132	787	–	–	82	435	239	487	–	–	138	714
Central Region																								
Juab	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Sanpete	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Tooele	78	71	80	137	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Utah	–	–	100	32	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Wasatch	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
REGIONAL TOTALS	78	71	89	169	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	84	120
Southern Region																								
Beaver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Garfield	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Iron	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Kane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Millard	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Piute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Sevier	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Washington	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Wayne	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Northeastern Region																								
Daggett	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Duchesne	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
Uintah	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–		
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Southeastern Region																								
Carbon	–	–	160	138	–	–	–	–	–	–	–	–	–	–	–	–	–	–	128	73	–	–		
Emery	260	18	76	88	–	–	–	–	–	–	52	67	80	187	70	187	85	37	79	143	81	96		
Grand	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	50	10	–	–	–	–		
San Juan	50	84	–	–	–	–	–	–	–	–	53	227	63	275	31	42	56	39	93	137	36	30		
REGIONAL TOTALS	65	102	119	226	–	–	–	–	–	–	53	294	63	462	61	229	56	86	93	353	68	126	73	250
LEHI CHECK STATION	75	2,075	83	1,075	84	1,021	96	1,517	107	1,391	137	1,396	130	1,293	114	741	92	978	116	144	109	587	103	1,162
NEPHI CHECK STATION	105	1,067	62	754	108	1,239	198	1,130	107	1,678	140	1,137	180	1,004	1,047	671	64	955	134	829	126	772	215	1,046
THIOKOL CHECK STATION																					115	370	–	–
STATE TOTALS	87	4,015	91	3,039	106	2,877	131	3,884	117	3,332	127	3,913	137	3,536	100	1,641	77	2,454	127	1,813	114	1,855	110	3,050

Table 11. Percent of harvest by hatching date of immature mourning doves in northern Utah, 1982-91.

Date Hatched	Age (Days)	P	PERCENT OF HARVEST BY HATCH DATE										SAMPLE SIZE									
			1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Aug 3	29	none	32.60	22.80	43.10	44.70	31.20	34.80	--	41.30	52.20	--	152	77	304	115	192	155	--	81	254	--
Jul 31	32	1	24.90	21.30	29.40	26.80	35.00	21.80	--	30.10	26.70	--	116	72	207	69	215	97	--	59	130	--
Jul 25	38	2	21.70	21.00	19.00	14.00	15.60	17.50	--	18.40	13.10	--	101	71	134	36	96	78	--	36	64	--
Jul 18	45	3	7.70	14.80	6.00	3.90	8.60	10.60	--	6.60	4.30	--	36	50	42	10	53	47	--	13	21	--
Jul 9	54	4	4.70	9.20	2.10	1.90	4.70	5.70	--	2.60	2.30	--	22	31	15	5	29	25	--	5	11	--
Jun 30	63	5	4.10	6.20	0.40	1.60	2.80	4.30	--	0.50	0.60	--	19	21	3	4	17	19	--	1	3	--
Jun 21	72	6	2.80	2.10	0.00	0.00	1.30	3.80	--	0.00	0.40	--	13	7	0	0	8	17	--	0	2	--
Jun 8	85	7	1.30	2.40	--	0.00	0.50	1.10	--	0.50	--	--	6	8	0	0	3	5	--	1	--	--
May 22	102	8	0.20	0.00	--	0.00	0.30	0.20	--	0.00	--	--	1	1	0	0	2	1	--	0	--	--
Apr 27	127	9	--	--	--	0.00	0.00	0.20	--	0.00	0.40	--	0	0	0	0	0	1	--	0	2	--
Apr 21	133	10	--	--	--	7.00	0.00	0.00	--	0.00	0.00	--	0	0	0	18	0	0	--	0	--	--
			100	99.80	100	99.90	100	100	--	100	100	--	466	338	705	257	615	445	--	196	487	--

P = Last primary molted.

Table 12. Percent of harvest by hatching date of immature mourning doves in northern Utah, 1991.

			PERCENT OF HARVEST BY HATCH DATE					SAMPLE SIZE				
Date Hatched	Age (Days)	P	Lehi CS	Nephi CS	C Region Total	Thiokol CS	SE Region	Lehi CS	Nephi CS	C Region Total	Thiokol CS	SE Region
Aug 3	29	none	47.61	45.57	46.75	--	37.25	199	139	338	--	19
Jul 31	32	1	32.78	32.46	32.64	--	37.25	137	99	236	--	19
Jul 25	38	2	11.48	10.49	11.07	--	13.73	48	32	80	--	7
Jul 18	45	3	5.26	6.89	5.95	--	5.88	22	21	43	--	3
Jul 9	54	4	0.72	2.95	1.66	--	1.96	3	9	12	--	1
Jun 30	63	5	1.20	0.33	0.83	--	3.92	5	1	6	--	2
Jun 21	72	6	0.48	0.33	0.41	--	0.00	2	1	3	--	--
Jun 8	85	7	0.48	0.66	0.55	--	0.00	2	2	4	--	--
May 22	102	8	0.00	0.00	0.00	--	0.00	0	0	0	--	--
Apr 27	127	9	0.00	0.33	0.14	--	0.00	0	1	1	--	--
Apr 21	133	10	0.00	0.00	0.00	--	0.00	0	0	0	--	--
			100	100	100	--	100	418	305	723	--	51

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 1991 band-tailed pigeon harvest is in Table 13. Permits were required in 1991 and a questionnaire was sent to participants. Only 19 hunters purchased the $3.00 band-tailed pigeon permit in 1991. Harvest trends since 1970 are shown in Figures 4 & 5 and Table 14.

		Percent change from	
	1991	1990	Average
Band-tailed pigeon hunters	15	+67	-62
Band-tailed pigeon harvest	31	+343	-71
Hunter-days afield	20	-29	-81
Pigeons per hunter-day	1.50	+477	+93
Pigeons per hunter	2.10	+163	-5

Band-tailed pigeon hunters afield increased slightly from 1990, but remains 62 percent below the long-term average. Hunter success rates increased substantially from 1990, however, only 31 birds were harvested. Pigeon harvest was reported in Beaver, Millard and Washington counties. Most of the harvest for 1991 was reported in Beaver County.

Table 13. Band-tailed pigeon harvest statistics, 1991.

Area Hunted	Participating Hunters		Hunter Days		Harvest		Pigeons/ Hunter-Day	Percent of Pressure**	Percent of Harvest
	Reported	Calc.	Reported	Calc.	Reported	Calc.			
Beaver County	4	6	5	7	10	15	2.0	40	48
Blue Mountain-Elk Ridge	*	*	*	*	*	*	*	*	*
Carbon County	*	*	*	*	*	*	*	*	*
Garfield County	*	*	*	*	*	*	*	*	*
Iron County	*	*	*	*	*	*	*	*	*
Kane County	*	*	*	*	*	*	*	*	*
LaSal Mountain	*	*	*	*	*	*	*	*	*
Millard County	4	6	7	10	6	9	0.9	40	29
Piute County	*	*	*	*	*	*	*	*	*
Utah County	*	*	*	*	*	*	*	*	*
Washington County	2	3	2	3	5	7	2.5	20	24
Wayne County	*	*	*	*	*	*	*	*	*
Mixed Counties								*	*
(Washington and Iron)	*	*	*	*	*	*	*	*	*
Totals	10	15	14	20	21	31	1.50	100	100

**Based on hunter-days.

Projection Factor = 1.4615385 (19 permits issued/13 questionnaires returned)

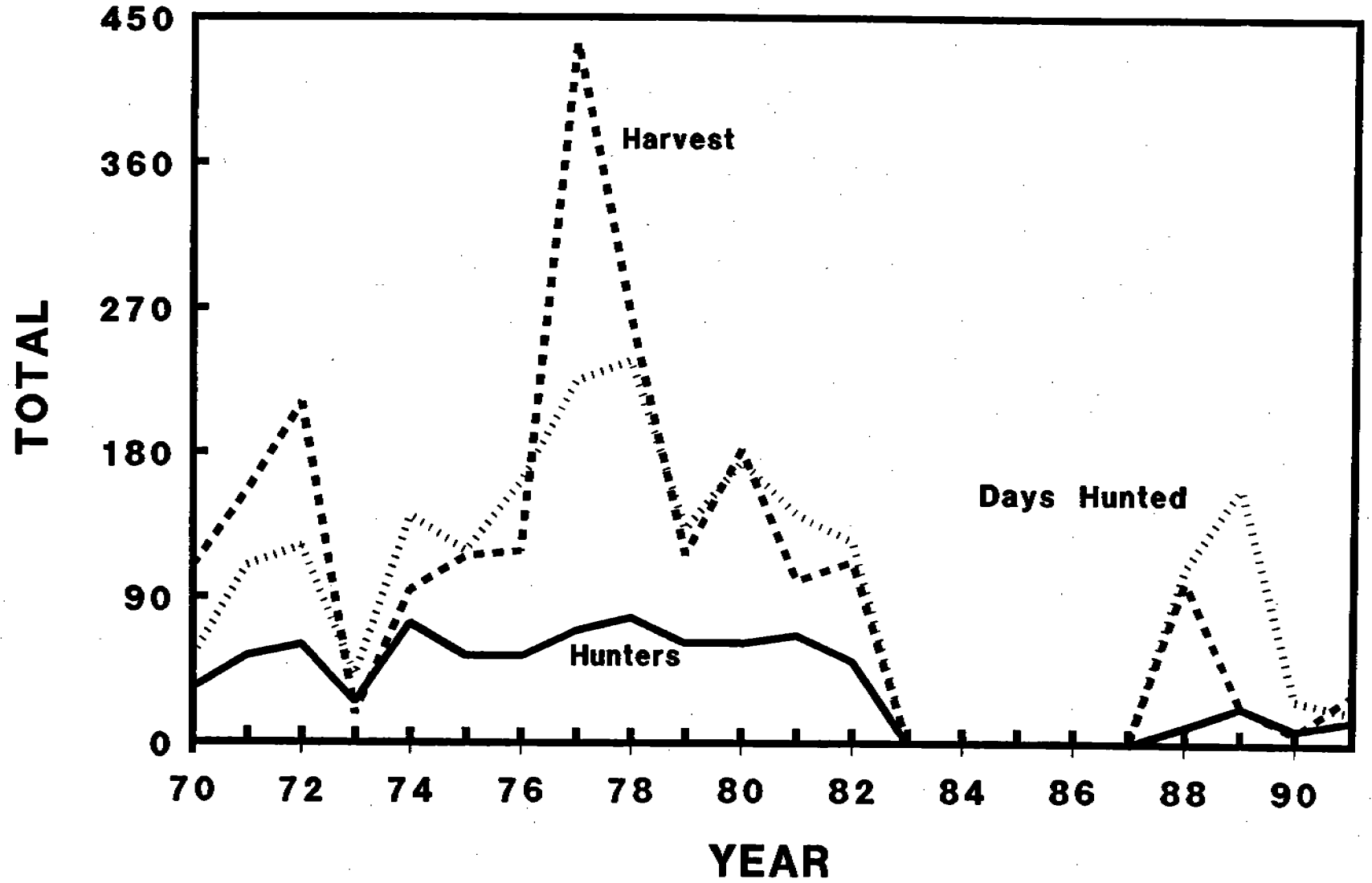


Figure 4. Statewide trends of band-tailed pigeon harvest statistics, 1970-91.

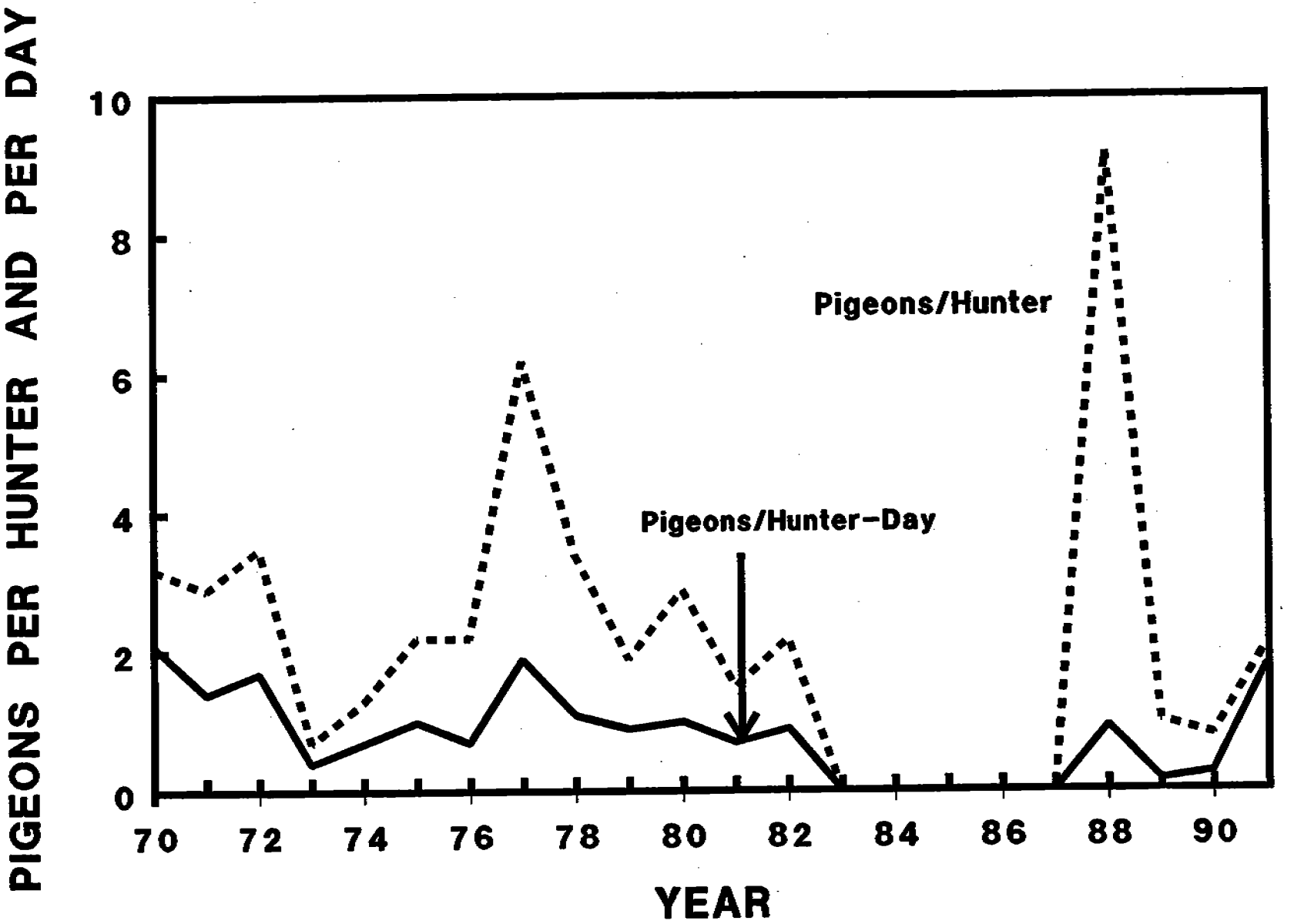


Figure 5. Statewide trends of band-tailed pigeon hunter success rates, 1970-91.

Table 14. Statewide summary of band-tailed pigeon harvest statistics, 1970-91.

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
Totals (1970-91)	804	2,199	2,103	--	--
Averages (1970-90)	39	108	103	0.78	2.22

CHUKAR PARTRIDGE

SUMMARY

The statewide breeding population of chukars decreased in 1991 following the sixth straight year of drought over much of Utah. Late winter and early spring precipitation, critical to successful chukar production, was below average.

Results of the brood survey indicated that brood production was above average. Chukar density increased during 1991, and was below average.

Harvest statistics from mail questionnaires reflected a decrease in harvest. Hunter success (chukars per hunter-day) increased slightly from 1990. Chukar hunters and time afield decreased slightly from the year before. Hunting success on opening weekend, as measured by field bag checks, indicated decreased hunter success.

Brood Counts

Results of the annual random brood survey for 1991 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 1991 compared to 1990 and the 10-year (1981-90) average:

	1991	Percent change from 1990	Average
Total chukars observed	76	-75	-89
Young per 100 adults	533	+87	+24
Mean brood size	7.33	+33	+4
Chukars observed per 100 hours	267	+9	-49
Total hours effort	29	-77	-78

Harvest data for 1990 indicated breeding populations for 1991 were still significantly below statewide averages. The 1990-91 winter weather was drier than normal October through February and colder than normal December through January. Late winter and early spring precipitation (January-April) was below average over the entire state (Figure 4). Drought continued over most of Utah for the sixth straight year.

Effort on chukar brood counts decreased significantly in 1991 and remained below average.

Brood count sample sizes were again small or nonexistent for all regions except the Central region. Chukar density was below the 10-year average and production was up from 1990.

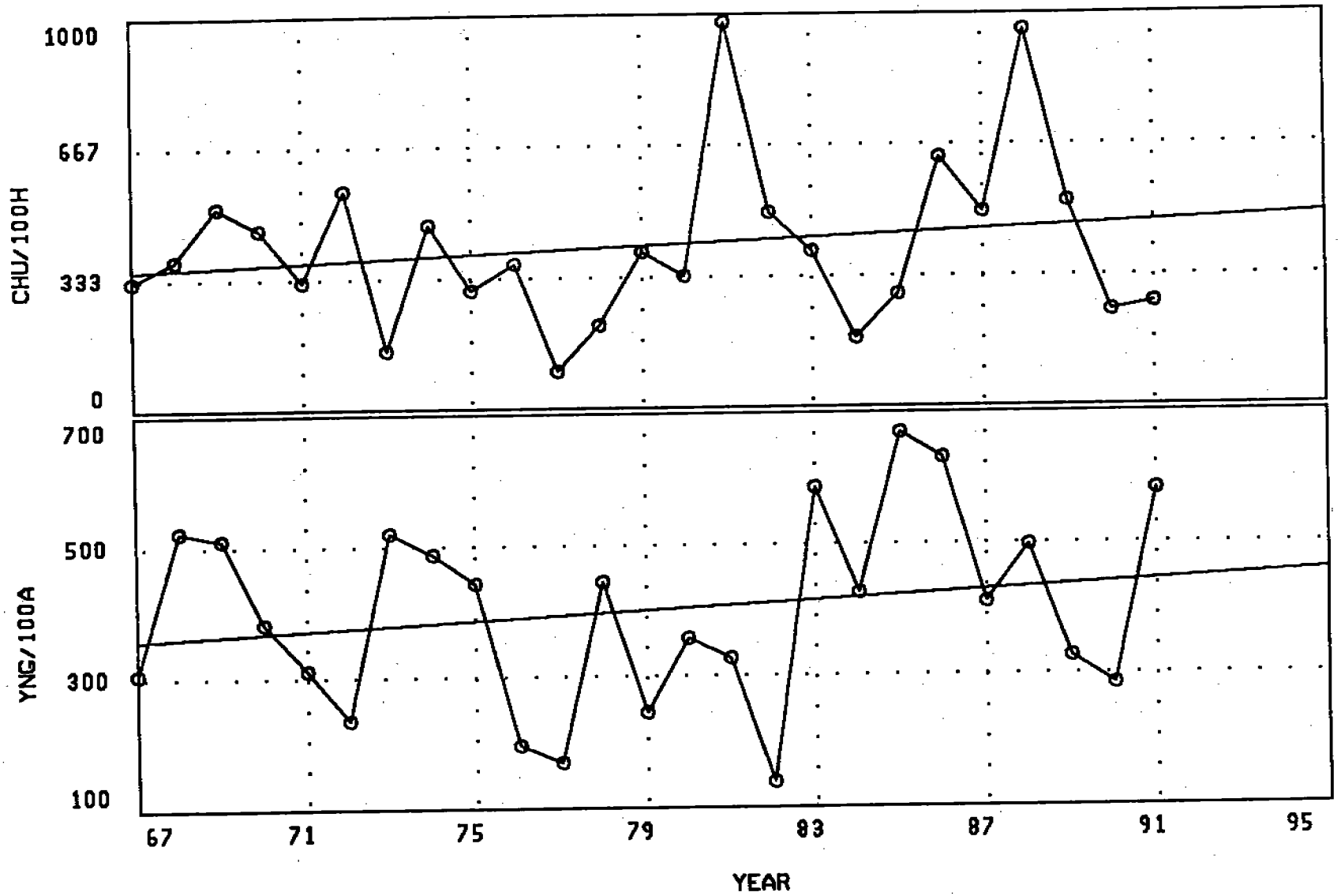
Harvest

Hunter Questionnaire

Results of the hunter questionnaire survey for 1991 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 1991 harvest statistics to 1990 and the previous 33-year average:

	1991	Percent change from 1990	Average
Chukar hunters	10,577	-6	-25
Chukars harvested	24,355	-8	-39
Hunter-days afield	34,010	-12	-20
Chukars per hunter-day	0.72	+4	-21
Chukars per hunter	2.30	-3	-16

FIGURE1. CHUKAR PRODUCTION INDICES, 1967-91.



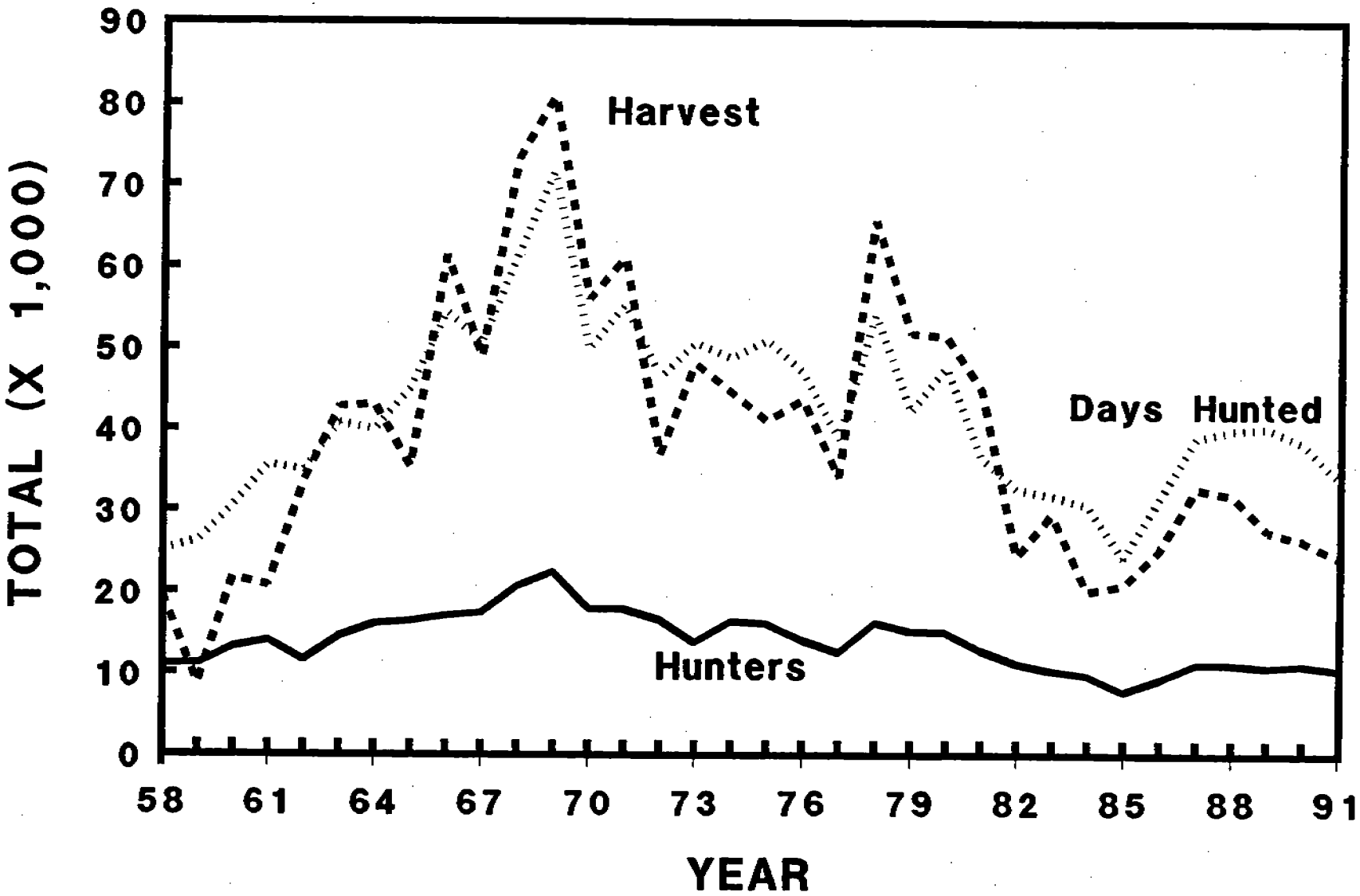


Figure 2. Statewide trends of chukar partridge harvest statistics, 1958-91.

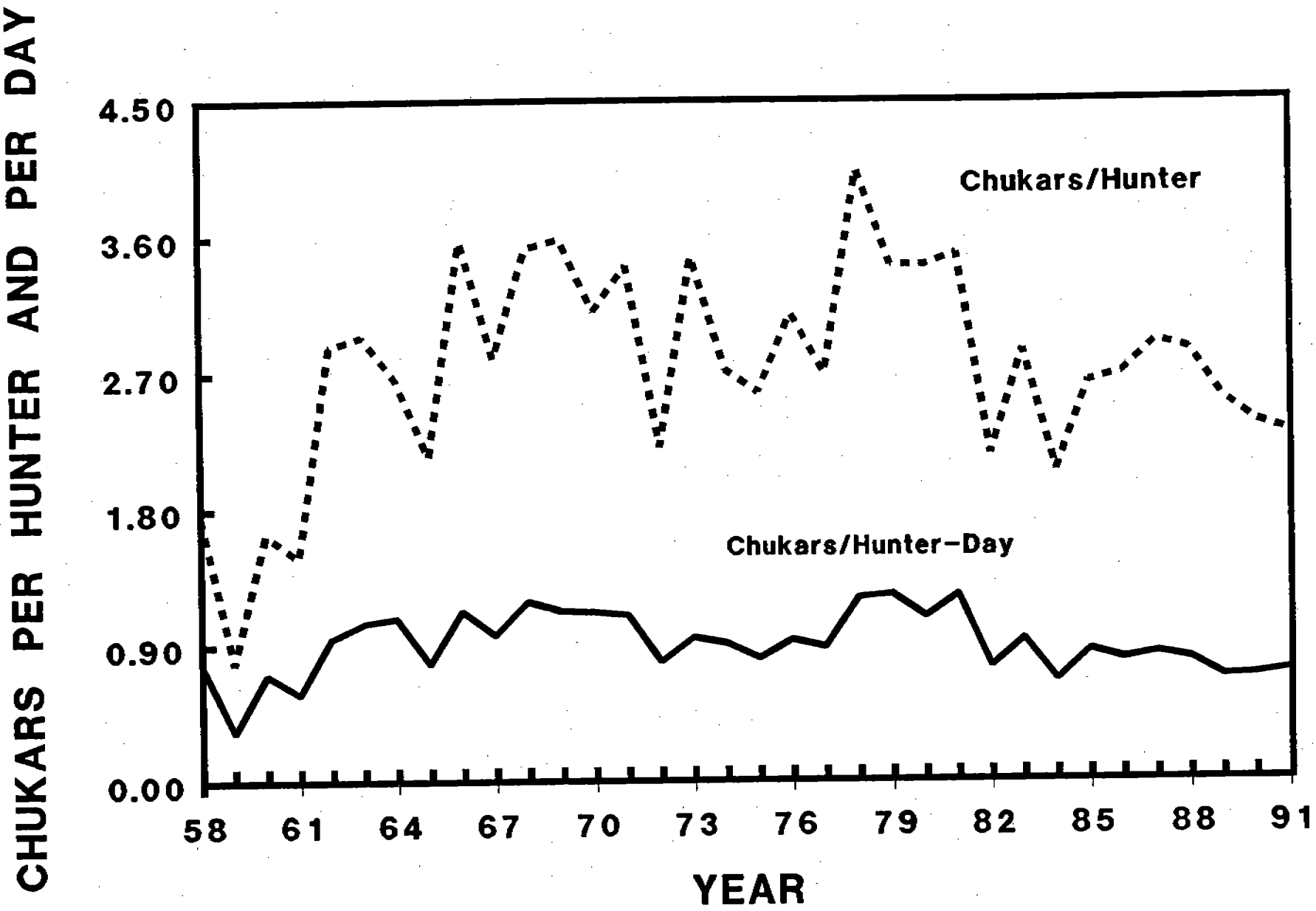


Figure 3. Statewide trends of chukar hunter success rates, 1958-91.

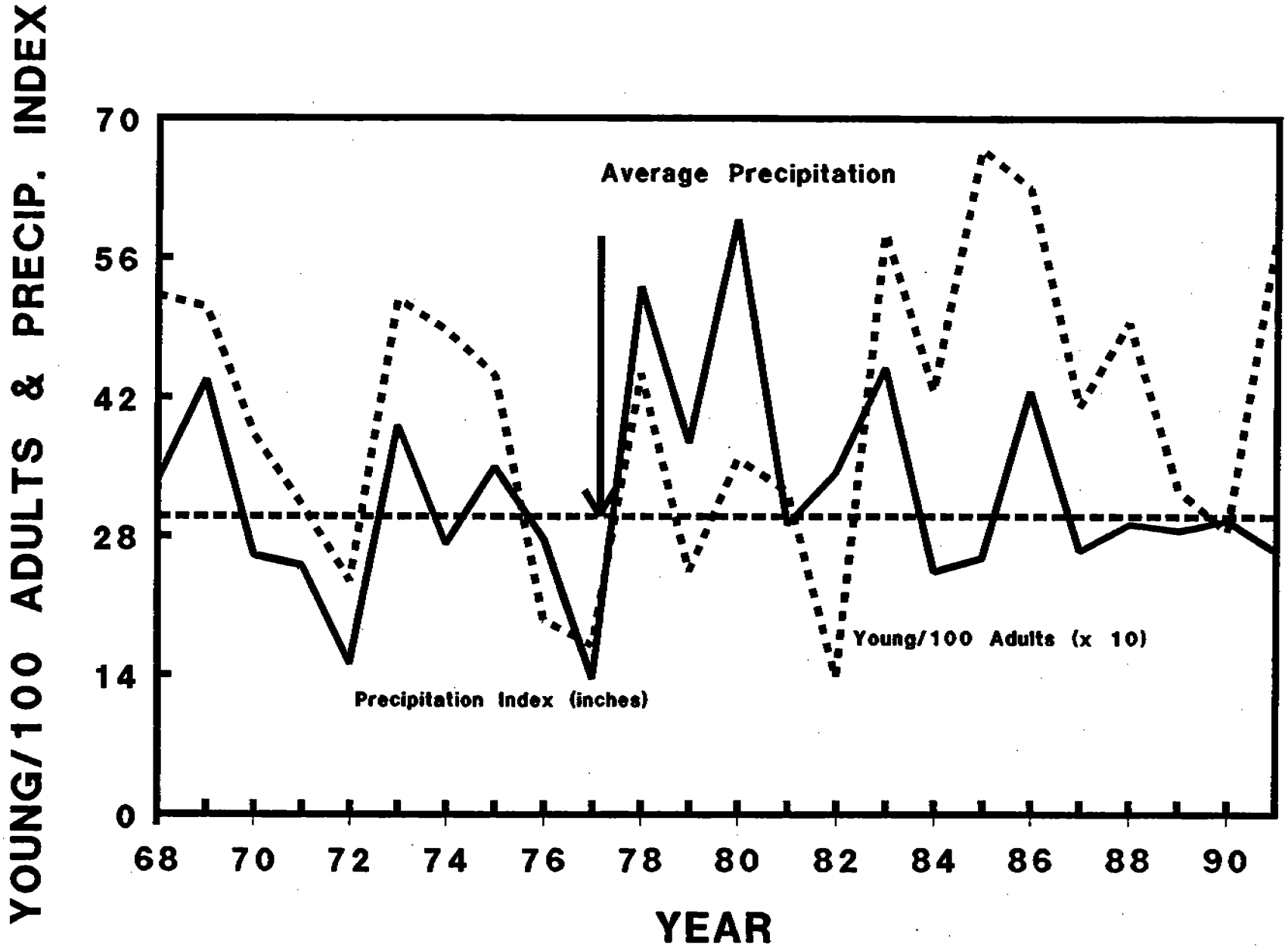
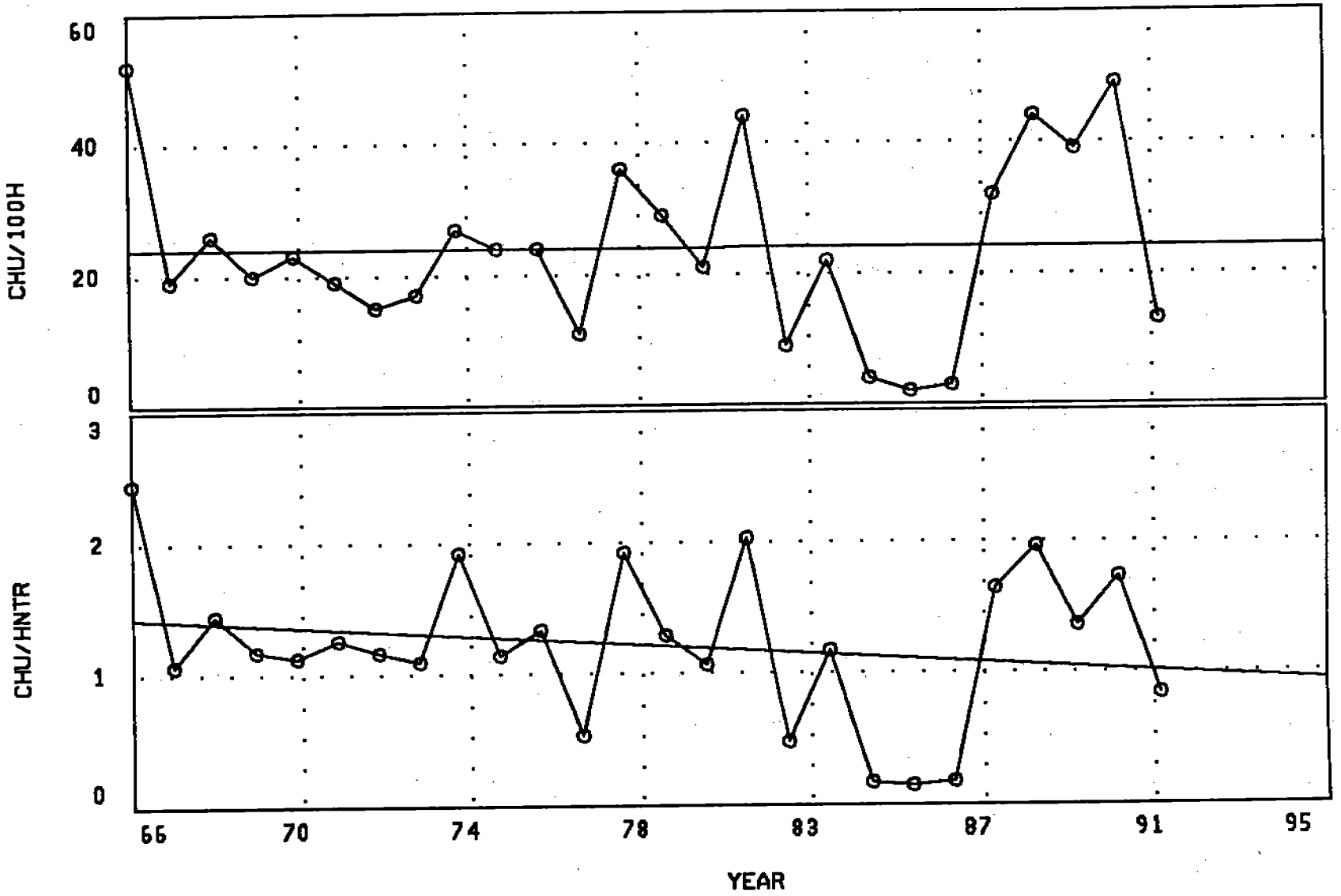


Figure 4. Relationship between late winter and early spring (Jan.–April) precipitation and chukar production, 1968–91.

FIGURE5. CHUKAR FIELD BAG CHECK INDICES, 1966-91.



Chukar hunters and hunter effort decreased slightly from 1990. Chukars per hunter-day increased slightly from 1990, but remains 21 percent below the statewide average. Total harvest declined 8 percent. The Central Region again had the highest percentage of the harvest (50%) in 1991, and also had the highest percentage of hunter pressure (46%).

Field Bag Checks

A summary of field bag check data for 1991 is shown in Table 10. The hunter success trend determined by field bag checks since 1986 is shown in Table 11 and Figure 5. Data for the 1991 season compared to 1990 and the 10-year (1981-90) average follow:

		Percent change from	
	1991	1990	Average
Total hunters checked	27	-37	-89
Total hours hunted	145	-6	-87
Chukars per hunter (complete hunts)	0.70	-51	-23
Chukars bagged per 100 hours (complete hunts)	13	-73	-49
Average hours per hunter-day (complete hunts)	5.37	+85	+26
Hours hunted per chukar bagged (complete hunts)	7.63	+282	-48

Field bag checks indicated hunter success on opening weekend was down from 1990 and was below average (23%). This may be the result of higher vulnerability of birds as they congregated around water sources. However, sample sizes were extremely small.

Table 1. Chukar summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Central Region																
Juab	--	--	--	--	3	11	--	3	11	367	102	7	--	--	7	200
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	1	1	10	10.00	--	--	--	1	10	1,000	24	2	--	--	2	733
Tooele	4	4	22	5.50	2	9	1	7	31	443	160	7	--	1	8	475
Utah	1	1	12	12.00	--	--	--	1	12	1,200	25	1	--	--	1	1,300
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	6	6	44	7.33	5	20	1	12	64	533	311	17	--	1	18	434
Southern Region																
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region																
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Southeastern Region																
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	40	2	--	--	2	--
Grand	--	--	--	--	--	--	--	--	--	--	120	6	--	--	6	--
San Juan	--	--	--	--	--	--	--	--	--	--	65	2	--	1	3	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	225	10	--	1	11	--
STATE TOTALS	6	6	44	7.33	5	20	1	12	64	533	536	27	--	2	29	267

Table 2. Trend of chukar young per 100 adults, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	326	120	--	--	4,200	700	283	136	--	--	--	
Cache	--	--	600	--	--	--	850	300	--	848	--	
Davis	65	7	--	--	--	--	24	--	--	400	--	
Morgan	--	--	750	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	750	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	193	27	262	--	4,200	560	125	117	--	675	--	1,092
Central Region												
Juab	315	600	--	800	--	739	600	462	120	587	367	
Salt Lake	400	50	--	--	--	--	--	--	--	--	--	
Sanpete	--	400	--	--	--	--	--	--	--	--	1,000	
Tooele	359	585	--	436	550	566	535	484	263	157	443	
Utah	--	--	--	--	300	--	875	--	472	--	1,200	
Wasatch	--	--	800	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	348	512	800	481	457	642	591	468	240	266	533	481
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	122	--	--	--	125	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	200	--	--	--	--	--	--	550	927	--	--	
Piute	938	642	--	--	--	--	370	--	--	--	--	
Sevier	800	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	600	737	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	410	389	737	--	--	125	370	550	927	--	--	501
Northeastern Region												
Daggett	--	--	--	--	--	--	0	--	--	--	--	
Duchesne	163	--	--	--	--	--	0	--	--	--	--	
Uintah	--	--	--	--	--	--	267	--	--	--	--	
REGIONAL TOTALS	78	--	--	--	--	--	267	--	--	--	--	173
Southeastern Region												
Carbon	--	--	--	359	--	1,300	1,014	600	--	--	--	
Emery	--	220	--	--	--	--	500	--	--	243	--	
Grand	577	518	617	775	730	730	573	621	64	0	--	
San Juan	533	--	--	337	--	--	--	--	200	--	--	
REGIONAL TOTALS	575	426	617	392	408	287	631	620	93	131	--	418
STATE TOTALS	326	138	586	426	670	631	411	496	327	285	533	430

Table 3. Trend of average brood size for chukars, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	--	8.33	12.00	--	9.00	--	8.50	7.50	--	--	--	
Cache	--	--	6.00	--	--	--	--	6.00	--	13.50	--	
Davis	--	--	--	--	--	--	--	--	14.00	12.00	--	
Morgan	--	--	7.50	--	--	--	--	--	7.00	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	7.50	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	8.33	3.00	7.00	--	9.00	--	8.50	7.00	10.50	13.00	--	8.29
Central Region												
Juab	5.45	6.00	--	8.00	--	7.45	8.00	6.75	5.50	4.30	--	
Salt Lake	4.00	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	10.00	
Tooele	8.92	10.60		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	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	7.13	10.14	--	6.80	8.63	7.69	8.23	7.07	5.00	3.60	7.33	7.14
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	2.00	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	7.75	7.50	--	--	
Piute	10.50	3.00	--	--	--	--	5.00	--	--	--	--	
Sevier	8.00	--	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	9.00	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	9.67	7.00	--	--	--	--	5.00	7.75	7.50	--	--	7.38
Northeastern Region												
Daggett	9.00	--	--	--	--	--	--	--	--	--	--	
Duchesne	--	--	--	--	--	--	--	--	--	--	--	
Uintah	--	--	10.00	--	--	--	10.00	--	--	--	--	
REGIONAL TOTALS	9.00	--	10.00	--	--	--	10.00	--	--	--	--	6.33
Southeastern Region												
Carbon	--	--	--	5.50	--	12.50	9.67	6.00	--	--	--	
Emery	--	--	--	--	5.00	--	5.00	--	--	8.50	--	
Grand	--	11.90	8.25	7.75	9.00	--	8.57	9.11	1.00	--	--	
San Juan	--	5.33	--	--	--	--	--	--	4.00	--	--	
REGIONAL TOTALS	--	11.30	8.25	7.00	7.67	10.40	8.25	8.95	2.50	8.50	--	8.09
STATE TOTALS	8.23	8.48	8.00	6.91	8.46	8.13	7.93	8.00	5.65	5.50	7.33	7.53

Table 4. Trend of chukars observed per 100 hours, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	645	80	--	--	239	168	40	236	--	--	--	
Cache	--	--	700	--	--	--	83	35	--	294	--	
Davis	810	1,127	100	--	--	22	313	500	250	333	--	
Morgan	--	--	850	--	--	--	--	--	500	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	502	479	227	--	155	102	91	111	135	295	--	233
Central Region												
Juab	692	363	--	200	--	2,611	850	913	500	229	200	
Salt Lake	500	43	--	--	--	--	--	--	--	--	--	
Sanpete	--	857	--	--	--	--	--	--	--	--	733	
Tooele	985	1,013	--	441	681	1,046	1,123	653	314	365	475	
Utah	--	38	--	--	578	--	1,950	--	2,100	--	1,300	
Wasatch	--	--	--	491	--	--	--	--	--	--	--	
REGIONAL TOTALS	722	578	164	291	542	1,424	844	822	623	281	434	629
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	500	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	1,467	--	--	--	--	--	--	1,486	1,596	--	--	
Piute	1,660	433	--	--	--	--	1,567	--	--	--	--	
Sevier	900	17	--	--	--	--	--	--	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	700	3,350	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	1,436	266	3,350	--	--	--	1,567	1,486	1,596	--	--	1,617
Northeastern Region												
Daggett	--	--	--	--	--	--	--	--	--	--	--	
Duchesne	300	790	--	--	--	--	--	--	--	--	--	
Uintah	614	454	86	--	--	0	856	--	--	--	--	
REGIONAL TOTALS	533	348	27	--	--	0	241	--	--	--	--	230
Southeastern Region												
Carbon	--	--	--	420	--	--	7,800	350	--	--	--	
Emery	--	--	--	--	833	--	771	--	--	480	--	
Grand	2,891	1,167	2,871	291	424	2,075	1,167	3,983	240	67	--	
San Juan	1,120	--	--	1,750	--	--	--	--	225	--	--	
REGIONAL TOTALS	2,338	1,578	2,871	858	530	2,075	1,335	3,293	225	150	--	1,525
STATE TOTALS	978	496	398	176	286	633	496	959	522	244	267	519

Table 5. Summary of chukar hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	139	7,323	5,706	0.78	21.53	23.43
CACHE	32	1,269	469	0.37	3.73	1.93
DAVIS	14	504	382	0.76	1.48	1.57
MORGAN	16	608	330	0.54	1.79	1.36
RICH	9	487	156	0.32	1.43	0.64
SUMMIT	4	243	34	0.14	0.72	0.14
WEBER	13	556	469	0.84	1.64	1.93
REGIONAL TOTALS	227	10,994	7,550	0.69	32.33	31.00
CENTRAL REGION						
JUAB	44	2,400	2,087	0.87	7.06	8.57
SALT LAKE	12	434	730	1.68	1.28	3.00
SANPETE	33	1,791	1,478	0.83	5.27	6.07
TOOELE	106	5,340	3,722	0.70	15.70	15.29
UTAH	102	5,184	4,105	0.79	15.24	16.86
WASATCH	6	452	226	0.50	1.33	0.93
REGIONAL TOTALS	303	15,604	12,351	0.79	45.88	50.71
SOUTHERN REGION						
BEAVER	11	1,095	730	0.67	3.22	3.00
GARFIELD	2	34	86	2.50	0.10	0.36
IRON	2	191	34	0.18	0.56	0.14
KANE	1	34	52	1.50	0.10	0.21
MILLARD	35	1,426	782	0.55	4.19	3.21
PIUTE	8	243	243	1.00	0.72	1.00
SEVIER	42	1,948	1,409	0.72	5.73	5.79
WASHINGTON	1	69	0	0.00	0.20	0.00
WAYNE	2	86	156	1.80	0.26	0.64
REGIONAL TOTALS	104	5,131	3,496	0.68	15.09	14.36
NORTHEASTERN REGION						
DAGGETT	0	0	0	0.00	0.00	0.00
DUCHESNE	9	539	104	0.19	1.59	0.43
UINTAH	7	243	191	0.79	0.72	0.79
REGIONAL TOTALS	16	782	295	0.38	2.30	1.21
SOUTHEASTERN REGION						
CARBON	10	452	208	0.46	1.33	0.86
EMERY	14	643	278	0.43	1.89	1.14
GRAND	6	226	86	0.38	0.66	0.36
SAN JUAN	1	173	86	0.50	0.51	0.36
REGIONAL TOTALS	31	1,496	661	0.44	4.40	2.71
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	681	34,010	24,355	0.72	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 6. Summary of chukars bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.30	0.55	0.49	0.62	0.63	0.54	0.89	0.78
Cache	0.43	0.13	0.14	0.85	0.58	0.73	0.51	0.37
Davis	0.53	0.43	0.50	0.20	1.65	0.42	0.79	0.76
Morgan	0.10	0.30	0.00	1.33	1.08	0.56	0.71	0.54
Rich	0.80	0.00	0.00	1.00	1.43	0.70	1.67	0.32
Summit	0.67	0.00	0.00	1.25	0.68	0.20	2.14	0.14
Weber	2.46	0.18	0.00	0.44	0.45	1.07	0.73	0.84
REGIONAL TOTALS	0.41	0.46	0.39	0.64	0.69	0.58	0.82	0.69
Central Region								
Juab	0.92	1.63	0.87	1.10	0.90	0.66	0.73	0.87
Salt Lake	1.59	0.96	1.08	1.16	0.69	1.05	1.16	1.68
Sanpete	1.14	1.28	0.88	0.58	1.26	1.06	1.35	0.83
Tooele	0.95	1.12	0.90	0.84	0.82	0.69	0.77	0.70
Utah	0.62	0.71	0.65	0.71	0.64	0.78	0.67	0.79
Wasatch	0.07	0.07	0.00	0.83	1.00	0.60	0.67	0.50
REGIONAL TOTALS	0.88	1.06	0.84	0.86	0.83	0.78	0.81	0.79
Southern Region								
Beaver	1.60	0.00	0.13	0.63	0.35	0.50	0.42	0.67
Garfield	1.83	0.00	0.33	0.40	1.13	0.63	0.00	2.50
Iron	2.00	0.00	0.00	0.00	0.00	0.00	0.25	0.18
Kane	0.67	0.00	0.00	0.00	0.00	0.00	0.00	1.50
Millard	0.80	1.55	1.88	1.09	0.95	0.57	0.62	0.55
Piute	0.50	0.71	0.13	0.81	0.30	0.54	0.29	1.00
Sevier	0.37	0.21	0.48	0.57	0.67	0.47	0.51	0.72
Washington	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wayne	0.00	1.00	0.00	2.00	1.83	0.27	0.00	1.80
REGIONAL TOTALS	0.63	0.72	0.92	0.82	0.72	0.50	0.45	0.68
Northeastern Region								
Daggett	--	0.00	0.00	3.00	0.00	0.00	0.00	0.00
Duchesne	0.22	2.00	0.00	0.20	2.12	0.73	0.27	0.19
Uintah	1.45	1.00	0.00	1.68	0.69	2.14	0.09	0.79
REGIONAL TOTALS	0.90	1.09	0.00	1.44	1.42	1.81	0.17	0.38
Southeastern Region								
Carbon	0.42	0.42	0.89	0.87	1.29	0.42	0.16	0.46
Emery	0.44	0.62	0.74	0.90	0.95	0.29	0.50	0.43
Grand	0.37	1.31	1.57	1.19	1.26	0.92	0.56	0.38
San Juan	0.25	0.00	0.86	1.67	0.50	0.00	0.00	0.50
REGIONAL TOTALS	0.40	0.65	1.05	1.07	1.03	0.50	0.39	0.44
Unknown Counties	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
STATE TOTALS	0.66	0.86	0.80	0.84	0.80	0.68	0.69	0.72

Table 7. Percentage distribution of chukar harvest by region and county, 1984-91.

Region and County	Year							
	1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	6.64	8.39	7.64	10.59	10.15	13.21	18.42	23.43
Cache	1.81	0.20	0.24	1.64	2.29	4.05	4.43	1.93
Davis	1.61	0.61	0.16	0.07	1.71	0.83	0.85	1.57
Morgan	0.30	0.31	0.00	0.29	0.67	1.43	0.93	1.36
Rich	0.41	0.00	0.00	0.07	0.52	0.53	1.17	0.64
Summit	0.20	0.00	0.00	0.37	0.88	0.08	1.17	0.14
Weber	3.22	0.41	0.00	0.59	0.26	1.13	1.48	1.93
REGIONAL TOTALS	14.18	9.92	8.04	13.65	16.51	21.25	28.44	31.00
Central Region								
Juab	7.24	11.67	7.89	12.68	7.18	5.33	5.13	8.57
Salt Lake	7.04	5.12	3.33	4.32	1.87	3.15	2.87	3.00
Sanpete	2.51	8.90	4.72	2.83	7.96	9.83	8.08	6.07
Tooele	26.66	32.85	27.07	20.44	24.63	19.67	28.21	15.29
Utah	11.97	10.75	9.02	9.77	9.06	15.09	10.26	16.86
Wasatch	0.10	0.10	0.00	0.37	0.20	0.23	0.16	0.93
REGIONAL TOTALS	55.53	69.40	52.03	50.44	50.93	53.30	54.70	50.71
Southern Region								
Beaver	0.80	0.00	0.16	1.41	1.09	1.05	2.18	3.00
Garfield	1.11	0.00	0.24	0.14	0.46	0.75	0.00	0.36
Iron	0.20	0.00	0.00	0.00	0.00	0.00	0.31	0.14
Kane	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.21
Millard	10.96	10.64	18.78	13.13	8.22	4.65	3.11	3.21
Piute	3.22	1.53	0.40	1.26	0.52	1.13	0.85	1.00
Sevier	3.72	0.72	5.93	5.67	8.80	5.26	4.74	5.79
Washington	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Wayne	0.00	0.31	0.00	0.14	0.57	0.30	0.00	0.64
REGIONAL TOTALS	20.32	13.20	25.53	21.79	19.68	13.14	11.19	14.36
Northeastern Region								
Daggett	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.00
Duchesne	0.20	0.20	0.00	0.07	1.87	0.60	0.78	0.43
Uintah	1.61	1.02	0.00	2.38	0.57	5.78	0.16	0.79
REGIONAL TOTALS	1.81	1.23	0.00	2.68	2.44	6.38	0.93	1.21
Southeastern Region								
Carbon	2.51	1.33	2.60	0.97	0.93	1.13	0.62	0.86
Emery	2.72	3.17	4.15	3.20	7.18	1.35	3.73	1.14
Grand	2.81	1.74	7.15	6.86	2.23	2.70	0.39	0.36
San Juan	0.10	0.00	0.49	0.37	0.05	0.00	0.00	0.36
REGIONAL TOTALS	8.15	6.24	14.39	11.41	10.41	5.18	4.74	2.71
Unknown Counties	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	14.54	13.02	12.36	14.35	12.95	16.59	14.18	21.53
Cache	2.77	1.04	1.43	1.63	3.16	3.80	5.94	3.73
Davis	1.98	1.23	0.26	0.31	0.83	1.34	0.75	1.48
Morgan	1.98	0.88	0.91	0.18	0.49	1.75	0.91	1.79
Rich	0.33	0.09	0.07	0.06	0.29	0.51	0.48	1.43
Summit	0.20	0.09	0.07	0.25	1.04	0.26	0.37	0.72
Weber	0.86	1.93	1.50	1.12	0.45	0.72	1.39	1.64
REGIONAL TOTALS	22.67	18.66	16.59	17.93	19.24	24.96	24.02	32.33
Central Region								
Juab	5.15	6.16	7.22	9.65	6.41	5.55	4.87	7.06
Salt Lake	2.91	4.58	2.47	3.13	2.16	2.05	1.71	1.28
Sanpete	1.45	5.98	4.29	4.13	5.03	6.37	4.12	5.27
Tooele	18.44	25.26	24.14	20.50	24.07	19.62	25.25	15.70
Utah	12.62	13.02	11.13	11.53	11.32	13.20	10.59	15.24
Wasatch	0.99	1.32	0.20	0.37	0.16	0.26	0.16	1.33
REGIONAL TOTALS	41.57	56.34	49.45	49.34	49.18	47.05	46.71	45.88
Southern Region								
Beaver	0.33	1.85	0.98	1.88	2.49	1.44	3.53	3.22
Garfield	0.39	0.97	0.59	0.31	0.33	0.82	0.59	0.10
Iron	0.07	0.00	0.00	0.00	0.00	0.36	0.86	0.56
Kane	0.20	0.89	0.26	0.06	0.00	0.00	0.05	0.10
Millard	8.99	5.89	8.00	10.09	6.95	5.60	3.48	4.19
Piute	4.23	1.85	2.47	1.31	1.37	1.44	2.03	0.72
Sevier	6.61	2.99	9.95	8.33	10.53	7.60	6.37	5.73
Washington	0.13	1.06	0.00	0.12	0.00	0.00	0.27	0.20
Wayne	0.20	0.26	0.00	0.06	0.24	0.77	0.05	0.26
REGIONAL TOTALS	21.14	15.76	22.25	22.19	21.94	18.03	17.23	15.09
Northeastern Region								
Daggett	0.00	0.00	0.00	0.06	0.00	0.00	0.59	0.00
Duchesne	0.59	0.09	0.00	0.31	0.70	0.56	1.98	1.59
Uintah	0.73	0.88	0.78	1.19	0.66	1.85	1.18	0.72
REGIONAL TOTALS	1.32	0.97	0.78	1.56	1.37	2.41	3.75	2.30
Southeastern Region								
Carbon	3.90	2.73	2.34	0.94	0.58	1.85	2.68	1.33
Emery	4.10	4.40	4.49	3.00	6.03	3.18	5.14	1.89
Grand	5.02	1.14	3.64	4.82	1.41	2.00	0.48	0.66
San Juan	0.26	0.00	0.46	0.18	0.08	0.00	0.00	0.51
REGIONAL TOTALS	13.28	8.27	10.93	8.96	8.11	7.04	8.29	4.40
Unknown Counties	0.00	0.00	0.00	0.00	0.12	0.51	0.00	0.00
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, 1958-91.

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
Totals (1958-91)	475,711	1,333,917	1,429,544	–	–
Averages (1958-90)	14,095	39,684	42,289	0.91	2.74

Table 10. Chukar field bag check summary, 1991.

Region and County	All Hunts					Complete 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	2	3	6	1	17	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	2	3	6	1	17	--	--	--	--	--	--
Central Region											
Juab	5	14	28	0	0	1	2	6	4	67	2.00
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	6	14	27	13	48	3	8	19	10	53	1.25
Tooele	17	37	209	13	6	6	15	114	1	1	0.07
Utah	--	--	--	--	--	1	2	6	4	67	2.00
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	28	65	264	26	10	11	27	145	19	13	0.70
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	30	68	270	27	10	11	27	145	19	13	0.70

Table 11. Chukar hunter success trend as determined by field bag check, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	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	7	0.27	31	1.41	13	0.43	50	2.50	133	4.00	--	--
Cache	--	--	38	1.37	52	2.00	--	--	--	--	--	--
Davis	--	--	25	1.00	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	7	0.27	33	1.39	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	--	--	22	2.00	67	1.71	2	0.09	--	--	1	0.07
Utah	--	--	--	--	--	--	50	1.00	10	2.00	67	2.00
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	22	2.00	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	100	3.00	--	--	--	--	133	4.00	33	1.00	--	--
Grand	45	1.52	17	0.67	49	2.54	75	1.50	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	51	1.69	17	0.67	49	2.54	100	2.30	33	1.00	--	--
STATE TOTALS	3	0.15	32	1.37	44	1.63	39	1.13	49	1.44	13	0.70

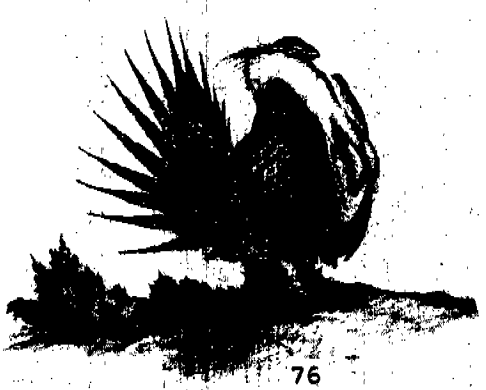
SAGE GROUSE

SUMMARY

Harvest data for 1990 indicated above average breeding populations of sage grouse for 1991. Strutting ground surveys indicated a decrease in the average male grouse attendance from 1990.

Brood surveys showed decreased production throughout the state. Birds observed per 100 hours remained about the same as in 1990, and was 14 percent below average. The ratio of young to adults decreased 33 percent compared to 1990 and was 21 percent below average.

The decrease in production, as indicated from brood counts, in 1991, was apparent in harvest statistics collected from questionnaires and from field bag checks. Hunter success rates decreased. Harvest was above the 37-year average. Age ratios derived from wings indicated a 40 percent decrease in young per 100 adults and was 45 percent below average.



Strutting Ground Counts

The status of the sage grouse breeding population for 1991, as indicated by strutting ground counts, is shown in Table 1 and Figure 1 of this section. Results of this survey for 1991 compared to 1990 and the 1967-90 average follow:

	1991	Percent change from 1990	Percent change from Average
Number of grounds counted	71	-45	-35
Total male grouse counted	574	-78	-72
Average male grouse per ground	8	-60	-58
Percent change from previous year (comparable grounds)	-11		

Access for spring 1991 strutting ground counts was generally good in most regions of the state. The numbers of male grouse observed decreased statewide. Harvest data for 1990 indicated average populations going into the winter of 1990-91, but the numbers of juvenile birds observed during the summer indicated decreased production compared to 1990. Loss of habitat continues to be the trend in many areas of the state.

Brood Counts

Results of the summer inventory survey for 1991 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 1991 are compared to 1990 and the previous 10-year (1981-90) average as follows:

	1991	Percent change from 1990	Percent change from Average
Total sage grouse counted	547	-28	-60
Young per 100 adults	122	-33	-21
Mean brood size	3.70	-21	-17
Sage grouse observed per 100 hours	273	-2	-14
Total hours effort	201	-17	-52

The effort devoted to sage grouse brood counts was 52 percent below average, and the total number of grouse counted was 60 percent below average.

Sage grouse density remained about the same as in 1990, production of young per 100 adults decreased 33 percent. The average brood size was 17 percent below the 10-year average. Continued drought conditions may have negatively influenced brood survival or caused an earlier dispersal of broods.

FIGURE1. SAGE GROUSE STRUTTING GROUND COUNTS, 1959-91.

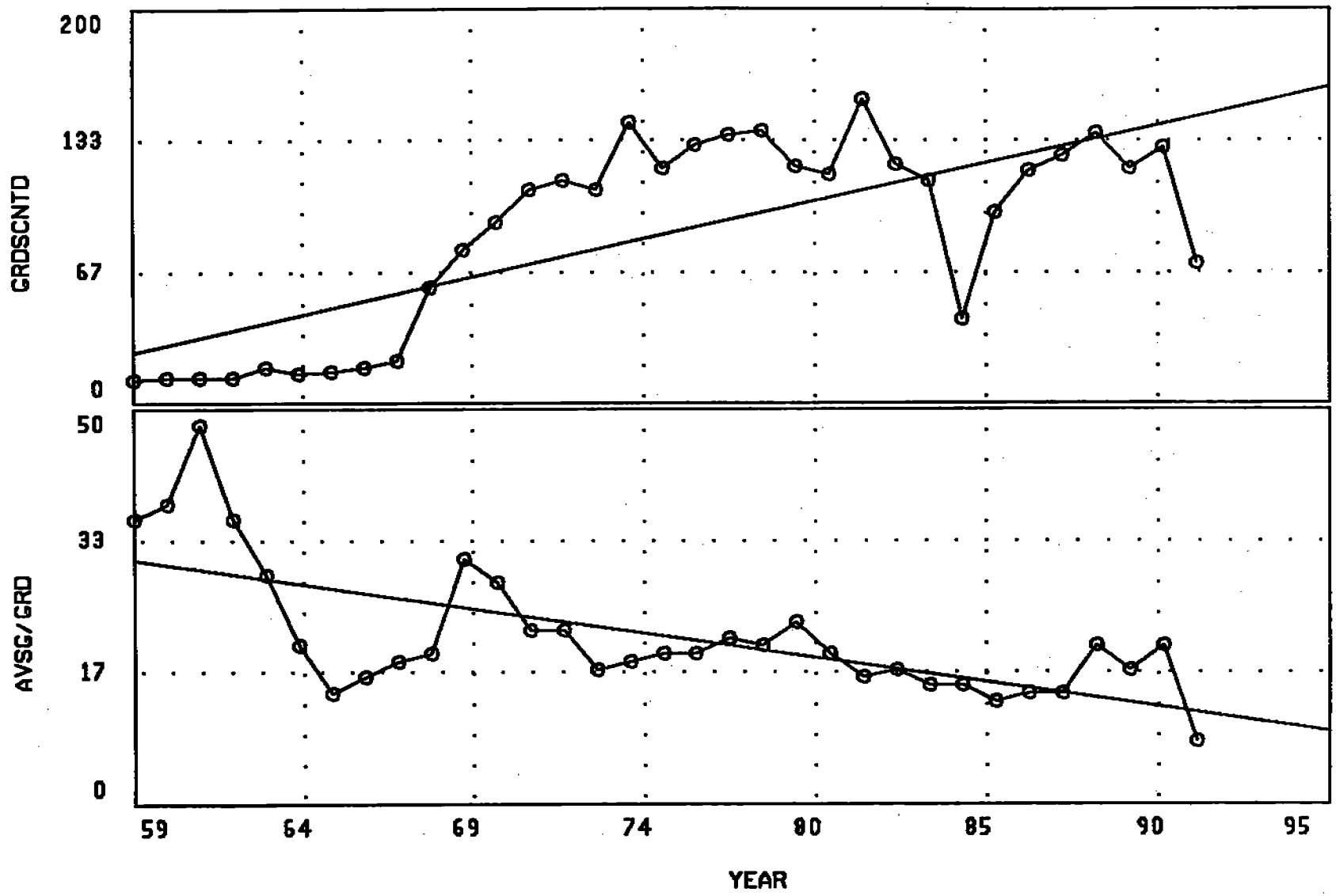
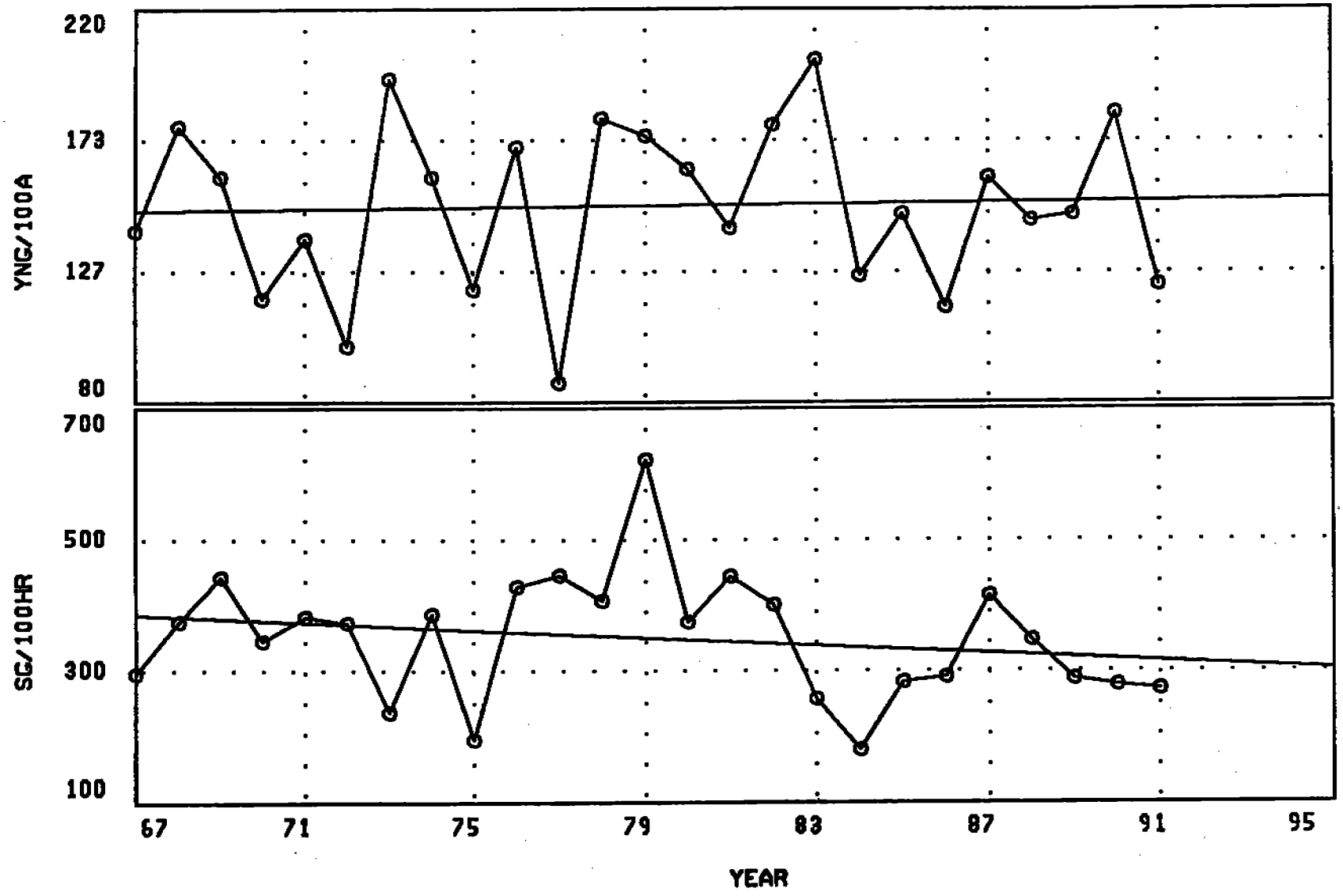


FIGURE2. SAGE GROUSE PRODUCTION INDICES, 1967-91.



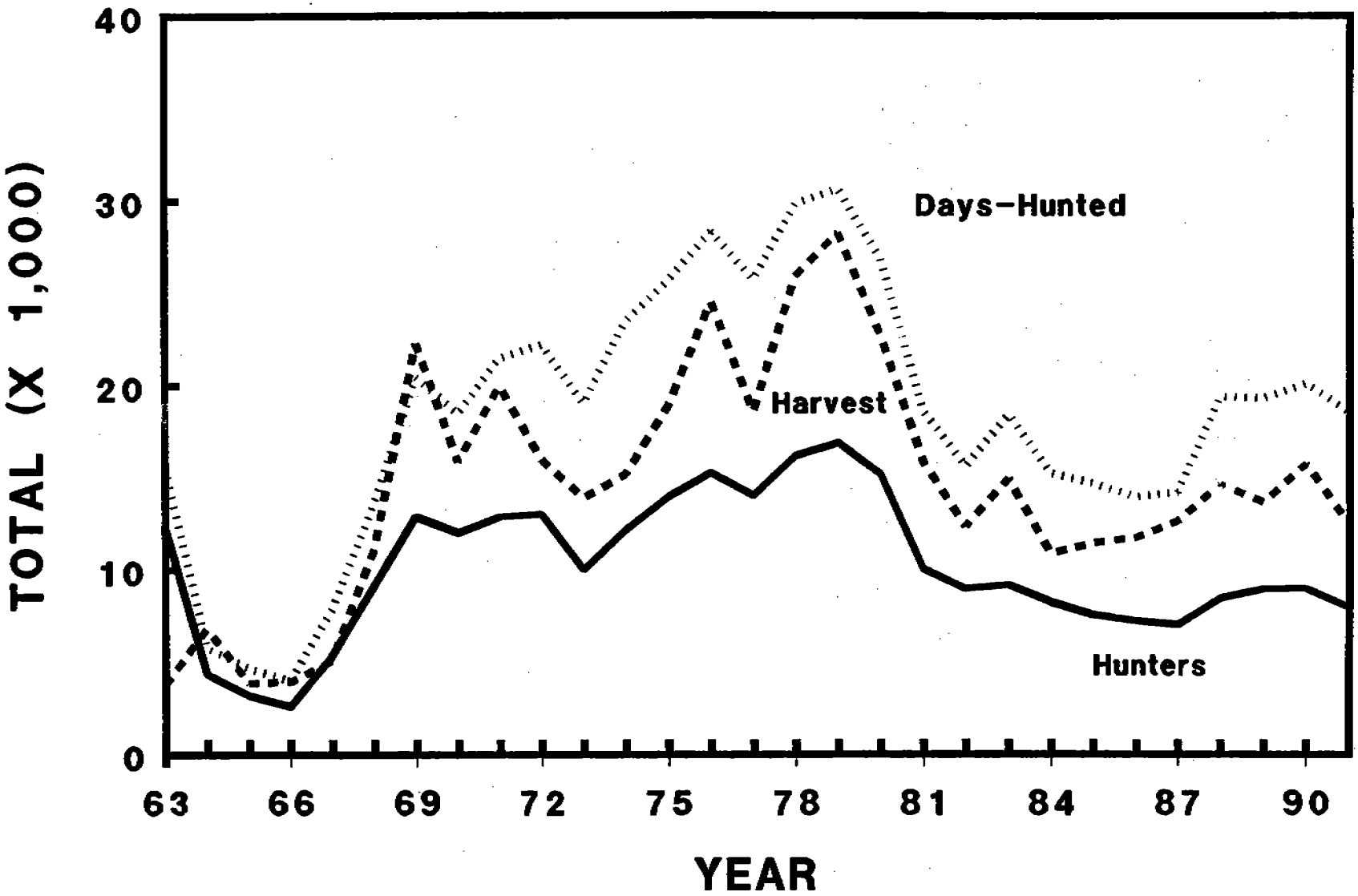


Figure 3. Statewide trends of sage grouse harvest statistics, 1963-91.

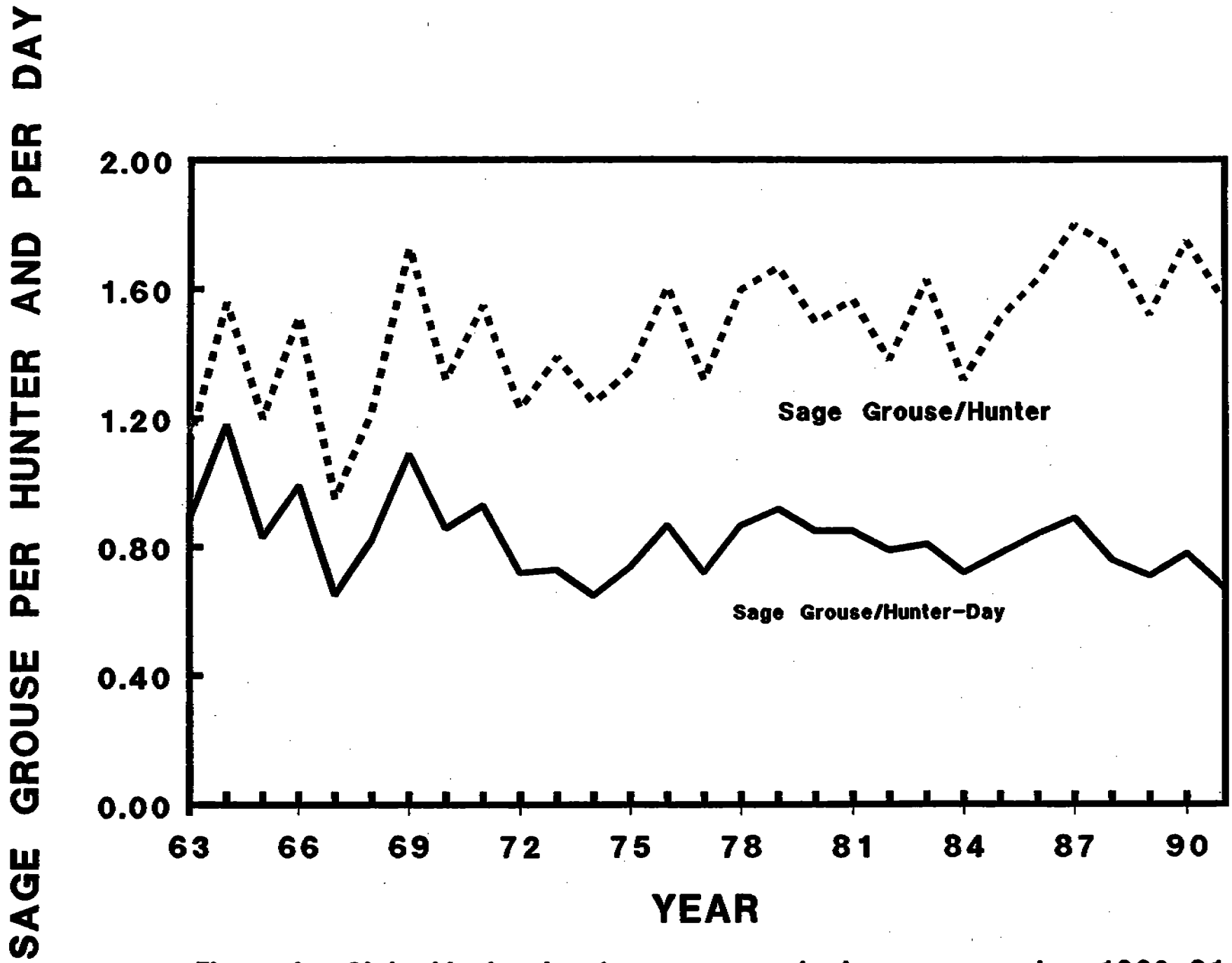
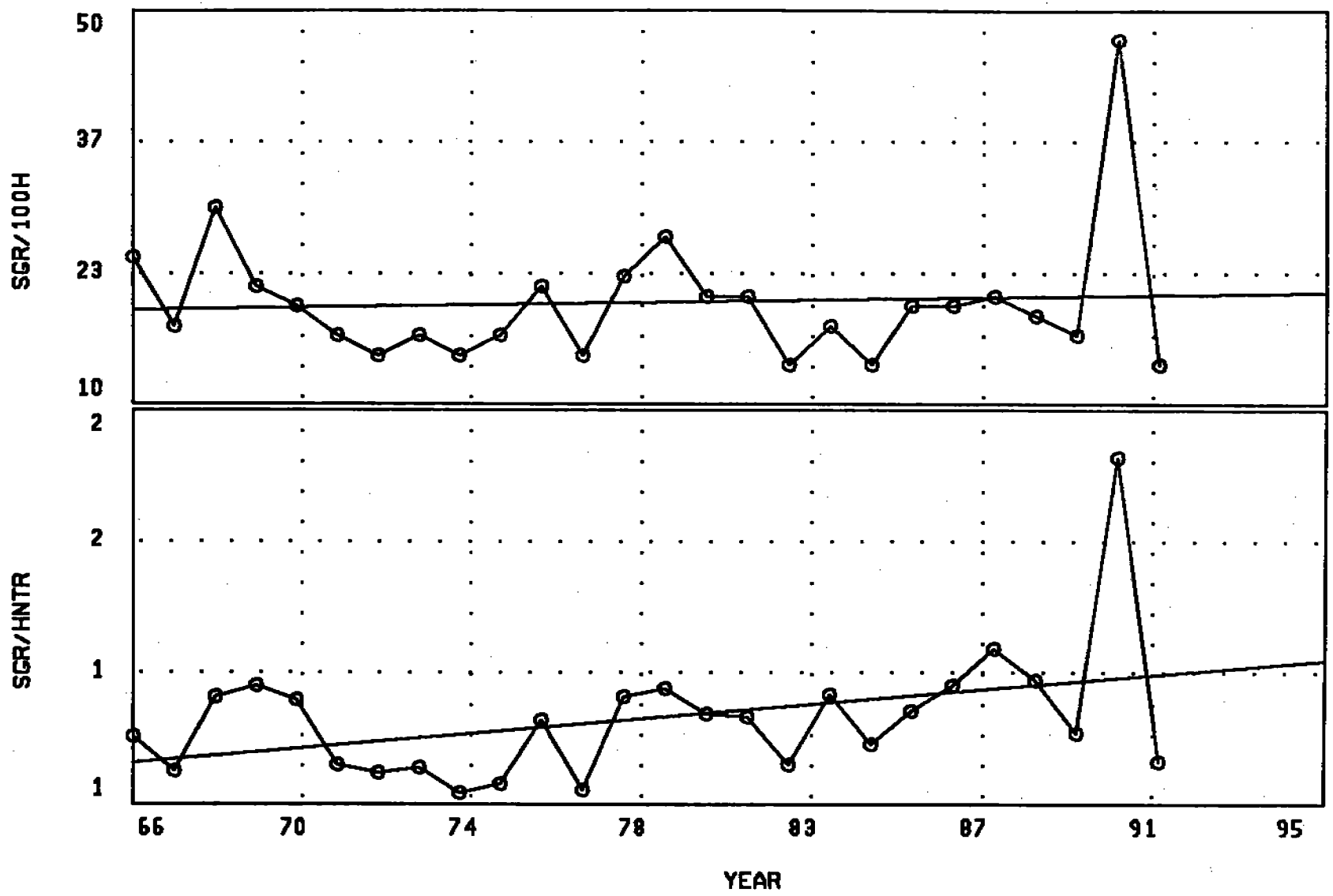


Figure 4. Statewide trends of sage grouse hunter success rates, 1963-91.

FIGURE5. SAGE GROUSE FIELD BAG CHECK INDICES, 1966-91.



Harvest

Hunter Questionnaire

Results of the 1991 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 1991 hunting season compared to 1990 and the previous 28-year average follow:

		Percent change from	
	1991	1990	Average
Sage grouse hunters	8,018	-11	+8
Sage grouse harvested	12,542	-21	+14
Hunter-days afield	18,596	-8	+4
Sage grouse per hunter-day	0.67	-14	-20
Sage grouse per hunter	1.56	-11	-16

Sage grouse per hunter-day success rate decreased 14 percent in 1991. Total statewide harvest decreased 21 percent, and there was a slight decrease in total sage grouse hunters. Forty-seven percent of the harvest and 48 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 1991 is shown in Table 11. Hunter success trends determined via this method are shown in Table 12 and Figure 5. Results of the 1991 survey compared to 1990 and the 10-year (1981-90) average follow:

		Percent change from	
	1991	1990	Average
Total hunters checked	948	+105	-20
Total hours hunted	4,981	+204	-10
Sage grouse per hunter (complete hunts)	0.75	-59	-27
Sage grouse bagged per 100 hours	14	-70	-31
Average hours per hunter-day (complete hunts)	5.25	+35	+4
Hours hunted per grouse bagged (complete hunts)	7.04	+232	+31

Much of Utah was again dry with birds concentrated around available water. Hunter success rates from field bag checks showed decreased success for 1991 compared to 1990 and the long-term average.

Sex and Age Composition of the Harvest

A summary of the sex and age composition of harvested sage grouse in 1991 is found in Table 13 and the trend from 1988-91 in Table 14.

Following are data derived from wing surveys in 1991 compared to 1990 and the 1973-90 average:

	1991	Percent change from 1990	Average
Sample size	943	0	-17
Percent males	42	0	+2
Percent females	58	0	-2
Young per 100 adults	81	-40	-45
Young per 100 hens (adult)	136	-34	-39

Analysis of wings collected at checking stations during the 1991 season indicates that statewide production was down compared to 1990, and was below the previous 18-year average. This corresponds with brood counts.

Table 1. Summary of sage grouse strutting ground counts by region and county, 1981-91.

Region and County	Year										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Northern Region											
Box Elder											
No. Strutting Grounds Counted	35	15	17	8	32	10	18	15	11	20	16
Total Male Grouse Counted	711	384	322	216	309	288	314	419	343	327	–
County Average (all strutting grounds)	20	26	19	27	10	29	18	28	31	23	21
% Change From Previous Year - Comparable Grounds	-35	-24	-29	-8	7	17	-12	33	-3	-17	-11
Cache											
No. Strutting Grounds Counted	3	1	0	1	0	2	1	1	2	--	–
Total Male Grouse Counted	18	19	0	5	--	8	0	9	15	--	--
County Average (all strutting grounds)	6	19	–	5	--	4	0	9	8	–	--
% Change From Previous Year - Comparable Grounds	-33	58	–	–	--	–	–	100	40	–	–
Morgan											
No. Strutting Grounds Counted	3	3	3	1	3	3	2	1	–	–	--
Total Male Grouse Counted	57	65	31	2	33	22	26	19	–	–	–
County Average (all strutting grounds)	19	22	10	2	11	7	13	19	--	–	–
% Change From Previous Year - Comparable Grounds	-57	16	-31	-91	1000	-33	18	-21	–	–	–
Rich											
No. Strutting Grounds Counted	13	7	9	6	18	11	12	3	6	19	22
Total Male Grouse Counted	259	153	188	103	399	296	431	319	281	863	710
County Average (all strutting grounds)	20	22	21	17	22	27	36	53	47	41	32
% Change From Previous Year - Comparable Grounds	5	-21	2	-2	49	-28	53	-10	5	-7	-18
Summit											
No. Strutting Grounds Counted	7	2	7	1	0	7	7	10	–	–	–
Total Male Grouse Counted	60	11	46	16	--	23	25	17	–	–	–
County Average (all strutting grounds)	9	6	7	16	--	3	4	2	–	–	–
% Change From Previous Year - Comparable Grounds	13	-50	-9	78	--	–	-65	-32	–	–	–
REGIONAL TOTALS											
No. Strutting Grounds Counted	61	28	36	17	53	33	40	33	19	39	38
Total Male Grouse Counted	1,105	632	587	342	741	637	806	783	639	1,190	710
Average Grouse Per Ground (all strutting grounds)	18	23	16	20	14	19	20	24	34	31	27
% Change From Previous Year - Comparable Grounds	-27	-20	-22	-9	27	-8	16	11	5	–	-15

Table 1 (continued)

Region and County	Year										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Central Region											
Juab											
No. Strutting Grounds Counted	--	--	--	--	--	--	1	1	1	1	1
Total Male Grouse Counted	--	--	--	--	--	--	9	14	11	4	15
County Average (all strutting grounds)	--	--	--	--	--	--	9	14	11	4	15
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	--	0	56	-21	-63	--
Sanpete											
No. Strutting Grounds Counted	2	2	2	2	2	2	2	2	2	2	2
Total Male Grouse Counted	9	11	8	0	0	0	0	0	0	0	0
County Average (all strutting grounds)	5	6	4	--	--	--	--	0	0	0	--
% Change From Previous Year - Comparable Grounds	0	22	-27	-100	0	0	0	0	0	0	--
Tooele											
No. Strutting Grounds Counted	5	5	6	6	6	6	5	5	5	5	5
Total Male Grouse Counted	46	28	28	23	55	82	96	89	77	91	82
County Average (all strutting grounds)	9	6	5	4	9	16	19	18	15	18	16
% Change From Previous Year - Comparable Grounds	-64	-64	0	-18	139	149	17	-5	-17	20	-15
Wasatch											
No. Strutting Grounds Counted	2	2	2	2	2	2	2	2	2	2	2
Total Male Grouse Counted	45	18	54	57	63	117	54	52	44	51	11
County Average (all strutting grounds)	23	9	27	29	32	59	27	26	22	26	6
% Change From Previous Year - Comparable Grounds	0	-60	200	6	11	205	-54	-4	-19	18	-75
REGIONAL TOTALS											
No. Strutting Grounds Counted	9	9	10	10	10	10	7	10	10	10	10
Total Male Grouse Counted	100	57	90	80	118	199	150	155	132	146	108
Average Grouse Per Ground (all strutting grounds)	11	6	9	8	12	18	17	16	13	15	12
% Change From Previous Year - Comparable Grounds	-51	-43	58	-11	48	170	-25	-3	-16	11	-45

Table 1 (continued)

Region and County	Year										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Southern Region											
Beaver											
No. Strutting Grounds Counted	7	7	7	4	3	4	4	3	5	2	--
Total Male Grouse Counted	140	131	117	48	45	55	52	46	71	33	--
County Average (all strutting grounds)	20	19	17	12	15	14	13	15	14	16	41
% Change From Previous Year - Comparable Grounds	6	-6	-11	78	--	22	-5	--	-7	--	--
Garfield											
No. Strutting Grounds Counted	11	9	8	7	--	8	9	8	8	10	--
Total Male Grouse Counted	298	359	197	133	--	152	175	251	126	244	--
County Average (all strutting grounds)	27	39	25	19	--	19	19	31	16	24	35
% Change From Previous Year - Comparable Grounds	114	78	-12	-46	--	13	0	24	-50	--	--
Iron											
No. Strutting Grounds Counted	7	9	4	--	5	6	4	6	6	3	--
Total Male Grouse Counted	101	111	105	--	81	131	64	111	127	50	--
County Average (all strutting grounds)	14	12	26	--	16	22	16	19	21	20	52
% Change From Previous Year - Comparable Grounds	20	-3	27	--	--	49	-11	-13	14	--	--
Kane											
No. Strutting Grounds Counted	--	--	--	--	--	--	--	--	2	--	--
Total Male Grouse Counted	--	--	--	--	--	--	--	--	41	--	--
County Average (all strutting grounds)	--	--	--	--	--	--	--	--	21	--	14
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	--	--	--	--	--	--
Millard											
No. Strutting Grounds Counted	1	1	--	1	1	1	--	--	--	--	--
Total Male Grouse Counted	22	22	--	4	2	3	--	--	--	--	--
County Average (all strutting grounds)	22	22	--	4	2	3	--	--	--	--	--
% Change From Previous Year - Comparable Grounds	--	0	--	--	--	33	--	--	--	--	--
Sevier											
No. Strutting Grounds Counted	2	4	--	--	--	2	--	2	--	--	1
Total Male Grouse Counted	0	5	--	--	--	0	--	0	--	--	20
County Average (all strutting grounds)	0	1	--	--	--	--	--	--	--	--	20
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	--	--	--	--	--	--
Wayne											
No. Strutting Grounds Counted	14	14	1*	(12)*	--	13	13	13	13	10	16
Total Male Grouse Counted	284	300	123	(89)	--	120	182	326	268	259	367
County Average (all strutting grounds)	20	21	123	(7)	--	9	14	25	21	26	23
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	-15	79	-18	--	--	--
REGIONAL TOTALS											
No. Strutting Grounds Counted	42	44	23	12	21	34	30	32	34	25	17
Total Male Grouse Counted	845	928	563	185	391	461	473	734	633	596	387
Average Grouse Per Ground (all strutting grounds)	20	21	24	15	19	14	16	23	19	24	31
% Change From Previous Year - Comparable Grounds	46	33	-9	-33	--	12	13	48	-18	--	--

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

Table 1 (continued)

Region and County	Year										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Northeastern Region											
Daggett											--
No. Strutting Grounds Counted	6	6	6	--	5	6	6	6	7	6	--
Total Male Grouse Counted	68	18	45	--	25	22	26	46	25	42	--
County Average (all strutting grounds)	11	3	7	--	5	3	4	8	4	7	--
% Change From Previous Year - Comparable Grounds	20	-57	56	--	-43	--	16	77	-24	24	
Duchesne											
No. Strutting Grounds Counted	16	15	15	--	13	14	14	7	11	15	--
Total Male Grouse Counted	112	156	178	--	121	117	104	9	76	173	--
County Average (all strutting grounds)	7	10	12	--	9	8	7	1	7	12	--
% Change From Previous Year - Comparable Grounds	0	15	17	--	-29	--	-12	-83	167	22	--
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	10	12	16	--	12	14	14	22	20	20	--
Total Male Grouse Counted	174	242	273	--	190	216	159	468	266	321	--
County Average (all strutting grounds)	17	20	17	--	16	15	11	21	13	16	--
% Change From Previous Year - Comparable Grounds	56	40	-21	--	-21	--	-26	66	-45	0	--
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	32	33	37	--	30	34	34	37	40	41	--
Total Male Grouse Counted	364	416	396	--	336	339	289	550	389	536	--
Average Grouse Per Ground (all strutting grounds)	11	13	13	--	11	10	9	15	10	13	--
% Change From Previous Year - Comparable Grounds	27	17	-3	--	-26	--	-18	37	-37	9	--

Table 1 (continued)

Region and County	Year										
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Southeastern Region											
Carbon											
No. Strutting Grounds Counted	6	1	1	--	--	2	7	10	10	9	8
Total Male Grouse Counted	2	0	16	--	--	32	55	196	181	146	103
County Average (all strutting grounds)	3	--	16	--	--	16	8	20	18	16	13
% Change From Previous Year - Comparable Grounds	--	--	100*	--	--	--	-27	142	-8	-38	-11
Emery											
No. Strutting Grounds Counted	--	2	--	--	1	1	2	2	2	2	2
Total Male Grouse Counted	--	9	--	--	12	11	10	12	28	5	7
County Average (all strutting grounds)	--	5	--	--	12	11	5	6	14	3	4
% Change From Previous Year - Comparable Grounds	--	--	--	--	--	-8	-18	20	167	-82	40
San Juan											
No. Strutting Grounds Counted	4	4	6	4	4	4	4	4	4	4	4
Total Male Grouse Counted	63	47	59	57	39	29	35	32	39	41	32
County Average (all strutting grounds)	16	12	10	14	10	7	9	8	10	10	8
% Change From Previous Year - Comparable Grounds	65	-25	52	-14	-29	-26	28	-9	22	5	-22
REGIONAL TOTALS											
No. Strutting Grounds Counted	10	7	7	4	4	7	13	16	16	15	6
Total Male Grouse Counted	65	56	75	57	39	72	100	240	248	192	47
Average Grouse Per Ground (all strutting grounds)	7	8	11	14	10	10	8	15	16	13	8
% Change From Previous Year - Comparable Grounds	58	-28	34	-14	-29	-26	0	74	3	-35	2
STATE TOTALS											
No. Strutting Grounds Counted	154	121	113	43	97	118	126	137	119	130	71
Total Male Grouse Counted	2,469	2,089	1,711	664	1,234	1,708	1,818	2,734	2,041	2,660	574
Average Grouse Per Ground (all strutting grounds)	16	17	15	15	13	14	14	20	17	20	8
% Change From Previous Year - Comparable Grounds	-9	-1	-8	-18	-1	5	2	51	14	-2	-11

Table 2. Sage grouse summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	17	17	63	3.71	2	11	27	46	74	161	213	30	69	20	119	101
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	16	16	48	3.00	12	34	94	122	82	67	341	63	4	--	67	304
Summit	--	--	--	--	--	--	--	--	--	--	--	25	--	--	25	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	33	33	111	3.36	14	45	121	168	156	93	554	118	73	20	211	154
Central Region																
Juab	--	--	--	--	--	--	--	--	--	--	90	6	--	--	6	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	6	6	23	3.83	7	20	2	15	43	287	155	9	--	5	14	414
Utah	1	1	12	12.00	--	--	--	1	12	1,200	25	1	--	--	1	1,300
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	7	7	35	5.00	7	20	2	16	55	344	270	16	--	5	21	338
Southern Region																
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	3	3	18	6.00	--	--	11	14	18	129	--	5	5	--	10	320
Iron	1	1	5	5.00	2	9	11	14	14	100	--	--	7	--	7	400
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	1	1	5	--	--	--	--	1	5	500	30	4	--	--	4	150
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	5.00	--	--	--	--	--	478	--	--	--	--	--	511
REGIONAL TOTALS	5	5	28	5.60	2	9	22	29	37	128	30	9	12	--	21	314
Northeastern Region																
Daggett	2	2	4	2.00	--	9	--	2	13	650	5	2	--	--	2	1,000
Duchesne	2	2	8	4.00	--	--	3	5	8	160	20	12	--	4	16	81
Uintah	3	3	6	2.00	8	18	10	21	24	114	35	3	--	--	3	1,500
REGIONAL TOTALS	7	7	18	2.57	8	27	13	28	45	161	60	17	--	4	21	356
Southeastern Region																
Carbon	1	1	6	6.00	--	--	3	3	6	200	55	10	--	--	10	90
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	1	1	2	2.00	--	--	--	1	2	200	31	3	--	--	3	100
REGIONAL TOTALS	2	2	8	4.00	--	--	3	5	8	160	86	13	--	--	13	100
STATE TOTALS	54	54	200	3.70	31	101	161	246	301	122	1,000	173	85	29	287	191

Table 3. Trend of sage grouse young per 100 adults, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	68	127	135	75	265	178	94	108	167	267	161	
Cache	122	--	--	--	--	--	--	--	--	500	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	120	--	240	--	300	--	500	--	117	--	--	
Rich	85	85	--	164	96	91	116	153	--	100	67	
Summit	114	80	67	--	400	167	50	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	82	91	145	126	130	103	115	135	156	235	93	132
Central Region												
Juab	245	--	--	--	--	--	--	380	250	196	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	348	314	305	--	--	--	--	--	--	--	--	
Tooele	101	107	176	100	125	106	207	100	194	110	287	
Utah	--	--	--	--	--	--	--	150	--	--	1,200	
Wasatch	236	166	157	175	43	200	209	300	--	667	--	
REGIONAL TOTALS	171	209	214	155	64	120	209	135	177	166	344	162
Southern Region												
Beaver	104	32	--	400	43	--	35	--	--	--	--	
Garfield	84	128	133	140	229	125	144	144	40	91	129	
Iron	113	148	150	63	--	250	198	146	155	264	100	
Kane	--	--	1,000	--	--	--	400	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	38	--	--	--	--	
Sevier	--	--	--	--	--	--	--	--	525	--	500	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	263	193	104	411	152	44	455	86	--	168	478	
REGIONAL TOTALS	154	130	98	92	137	105	216	127	135	154	128	135
Northeastern Region												
Daggett	230	369	88	250	170	100	124	181	433	533	650	
Duchesne	235	305	240	145	297	180	137	288	217	600	160	
Uintah	253	183	375	67	261	127	192	164	148	352	114	
REGIONAL TOTALS	242	237	265	126	255	131	159	172	155	374	161	212
Southeastern Region												
Carbon	64	--	--	238	400	133	150	--	56	33	200	
Emery	--	--	--	--	--	--	--	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	
San Juan	350	--	57	500	88	60	--	200	50	50	200	
REGIONAL TOTALS	83	--	57	267	122	81	150	200	55	88	160	110
STATE TOTALS	142	179	202	125	147	114	160	145	147	183	122	154

Table 4. Trend of average brood size for sage grouse, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	3.97	3.92	5.00	5.75	5.31	3.57	3.88	33.80	3.80	4.25	3.71	
Cache	3.50	–	–	–	–	–	–	–	–	5.00	–	
Davis	–	–	–	–	–	–	–	–	–	–	–	
Morgan	5.14	–	4.20	–	3.00	–	5.00	–	7.00	–	–	
Rich	3.67	4.45	–	3.92	3.96	5.08	5.00	4.27	–	2.00	3.00	
Summit	3.67	2.67	3.33	–	–	4.00	5.00	4.00	–	–	–	
Weber	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	3.94	4.00	4.25	4.36	4.39	4.74	4.82	4.17	4.30	3.67	3.36	4.26
Central Region												
Juab	2.00	–	–	–	–	–	–	6.33	4.00	4.75	–	
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	
Sanpete	4.80	6.36	5.93	–	–	–	–	–	–	–	–	
Tooele	3.00	3.33	4.33	3.33	3.29	3.25	3.60	3.50	3.00	3.13	3.83	
Utah	–	–	–	–	–	–	–	–	–	–	12.00	
Wasatch	3.83	4.81	3.14	4.90	2.00	5.00	6.94	6.00	–	6.67	–	
REGIONAL TOTALS	3.44	5.32	4.37	4.54	2.56	3.60	5.42	4.29	3.40	4.27	5.00	4.12
Southern Region												
Beaver	5.50	4.00	–	4.00	5.00	–	5.00	–	–	–	–	
Garfield	4.50	3.43	3.43	4.00	4.50	2.00	4.00	4.60	–	4.00	6.00	
Iron	3.57	6.40	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	3.96	4.43	3.67	5.00	3.57	6.00	6.14	6.29	–	4.30	5.00	
REGIONAL TOTALS	3.93	4.52	3.62	4.27	4.00	4.29	4.89	4.89	4.66	4.82	5.60	4.39
Northeastern Region												
Daggett	4.11	5.13	5.80	4.63	3.00	1.00	4.00	4.45	4.30	6.00	2.00	
Duchesne	3.91	5.32	4.59	3.77	4.73	4.29	3.54	3.60	2.17	6.00	4.00	
Uintah	5.27	4.95	5.13	3.00	5.00	5.44	5.55	4.05	5.15	5.60	2.00	
REGIONAL TOTALS	4.50	5.10	5.00	3.96	4.43	4.94	4.59	4.09	4.58	5.63	2.57	4.68
Southeastern Region												
Carbon	–	–	–	4.33	4.00	4.00	1.50	–	4.50	–	6.00	
Emery	–	–	–	–	–	–	–	–	–	–	–	
Grand	–	–	–	–	–	–	–	–	–	–	–	
San Juan	3.50	–	4.00	5.00	3.50	3.00	–	–	2.00	–	2.00	
REGIONAL TOTALS	3.50	–	4.00	4.50	3.67	3.40	1.50		3.67		4.00	3.03
STATE TOTALS	4.05	4.85	4.58	4.27	4.04	4.53	4.86	4.29	4.37	4.71	3.70	4.46

Table 5. Trend of sage grouse observed per 100 hours, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	571	238	90	195	380	304	475	694	431	303	102	
Cache	232	–	–	11	–	–	0	3	–	126	–	
Davis	–	–	–	–	–	–	–	–	–	–	–	
Morgan	471	77	93	–	19	–	19	–	100	–	–	
Rich	648	188		198	288	282	364	287	–	41	304	
Summit	135	100	81	–	–	21	480	300	–	–	–	
Weber	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	440	144	82	110	186	198	251	271	64	78	155	182
Central Region												
Juab	380	–	–	–	0	–	–	150	311	323	–	
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	
Sanpete	303	426	214	–	–	–	–	–	–	–	–	
Tooele	627	207	203	105	242	746	742	150	252	150	414	
Utah	–	–	–	–	–	–	–	125			1,300	
Wasatch	147	362	41	122	267	92	792	27	19	209	–	
REGIONAL TOTALS	347	342	111	118	244	310	776	118	154	200	338	272
Southern Region												
Beaver	613	62	767	167	429	–	575	–	–		–	
Garfield	480	291	300	257	295	225	275	452	207	661	320	
Iron	1,085	315	71	260	–	466	1,331	1,517	1,000	589	400	
Kane	–	–	275	–	–	–	500	–	–	–	–	
Millard	–	–	–	–	–	–	–	–	–	–	–	
Piute	–	–	–	–	–	316	–	–	–	–	–	
Sevier	–	–	–	–	–	–	–	417	–	–	150	
Washington	–	–	–	–	–	–	–	–	–	–	–	
Wayne	538	783	612	381	358	344	793	542	–	900	511	
REGIONAL TOTALS	653	429	392	304	342	300	732	574	705	781	314	521
Northeastern Region												
Daggett	800	300	467	308	284	114	492	474	168	585	1,000	
Duchesne	574	845	433	454	325	165	382	141	123	350	81	
Uintah	398	1,036	866	314	888	813	642	830	1,191	566	1,500	
REGIONAL TOTALS	507	800	631	364	490	474	509	589	741	533	356	564
Southeastern Region												
Carbon	219	–	–	415	–	200	28	–	125	685	90	
Emery	–	–	–	–	–	–	–	–	–	–	–	
Grand	–	–	–	–	–	–	–	–	–	–	–	
San Juan	50	–	50	57	231	400	–	–	150	120	100	
REGIONAL TOTALS	141	–	50	194	235	271	28	–	129	386	100	143
STATE TOTALS	444	401	258	180	274	291	415	347	288	279	273	318

Table 6. Summary of sage grouse hunter success and distribution of harvest and hunter pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	81	2,818	1,548	0.55	15.16	12.34
CACHE**	32	1,043	330	0.32	5.61	2.64
DAVIS**	4	191	34	0.18	1.03	0.28
MORGAN**	6	243	226	0.93	1.31	1.80
RICH	85	3,061	3,079	1.01	16.46	24.55
SUMMIT**	8	417	278	0.67	2.25	2.22
WEBER**	17	1,078	365	0.34	5.80	2.91
REGIONAL TOTALS	233	8,854	5,862	0.66	47.62	46.74
CENTRAL REGION						
JUAB**	7	226	121	0.54	1.22	0.97
SALT LAKE**	4	173	121	0.70	0.94	0.97
SANPETE**	6	278	121	0.44	1.50	0.97
TOOELE**	10	347	121	0.35	1.87	0.97
UTAH**	9	243	208	0.86	1.31	1.66
WASATCH**	11	330	156	0.47	1.78	1.25
REGIONAL TOTALS	47	1,600	852	0.53	8.61	6.80
SOUTHERN REGION						
BEAVER	4	121	34	0.29	0.65	0.28
GARFIELD	19	574	295	0.52	3.09	2.36
IRON	9	260	243	0.93	1.40	1.94
KANE	3	52	34	0.67	0.28	0.28
MILLARD**	8	260	330	1.27	1.40	2.64
PIUTE	10	347	347	1.00	1.87	2.77
SEVIER	20	991	382	0.39	5.33	3.05
WASHINGTON**	1	34	69	2.00	0.19	0.55
WAYNE	36	1,235	1,269	1.03	6.64	10.13
REGIONAL TOTALS	110	3,879	3,009	0.78	20.86	24.00
NORTHEASTERN REGION						
DAGGETT	9	365	173	0.48	1.96	1.39
DUCHESNE	17	521	347	0.67	2.81	2.77
UINTAH	64	2,661	1,878	0.71	14.31	14.98
REGIONAL TOTALS	90	3,548	2,400	0.68	19.08	19.14
SOUTHEASTERN REGION						
CARBON	11	452	226	0.50	2.43	1.80
EMERY**	4	139	121	0.80	0.75	0.97
GRAND	0	0	0	0.00	0.00	0.00
SAN JUAN**	3	121	69	0.57	0.65	0.55
REGIONAL TOTALS	18	713	417	0.59	3.84	3.33
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	498	18,596	12,542	0.67	100.00	100.00

* Total hunter-trips from questionnare returns.
**Closed to sage grouse hunting in 1991.

Table 7. Summary of sage grouse bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.80	0.73	0.94	1.05	0.78	0.94	0.92	0.55
Cache	0.54	0.21*	0.18*	0.38*	0.47*	0.45*	0.58	0.32*
Davis	0.18*	0.25*	0.25*	0.00*	0.00*	0.72*	0.25*	0.18*
Morgan	0.32	0.25*	0.47*	1.25*	0.36*	0.50*	0.33*	0.93*
Rich	0.50	0.30	0.58	0.88	0.81	0.63	0.85	1.01
Summit	0.23	0.20*	0.50*	0.55*	0.57*	0.71*	0.77*	0.67*
Weber	0.67	0.43*	0.57*	0.56*	0.64*	0.27*	0.43*	0.34*
REGIONAL TOTALS	0.55	0.49	0.67	0.76	0.66	0.69	0.75	0.66
Central Region								
Juab	0.33*	4.00*	3.00*	0.60*	0.88*	0.22*	0.20*	0.54*
Salt Lake	0.25*	0.08*	2.54*	0.00*	0.50*	0.30*	0.00*	0.70*
Sanpete	0.64*	0.44*	0.38*	0.62*	0.23*	0.61*	1.00*	0.44*
Tooele	0.53*	0.23*	1.54*	1.10*	0.27	0.41*	1.15*	0.35*
Utah	0.77*	0.45*	0.42	0.62	0.42	0.33	0.39	0.86*
Wasatch	0.28	0.19	0.65*	0.58	0.48*	1.50*	0.55*	0.47*
REGIONAL TOTALS	0.51	0.46	0.85	0.70	0.36	0.42	0.52	0.53
Southern Region								
Beaver	1.29	0.33	0.90	1.08	0.76	0.42	0.38	0.29
Garfield	1.33	0.78	0.68	1.50	1.17	1.14	0.74	0.52
Iron	1.00	1.85	0.82	1.29	0.61	0.62	0.58	0.93
Kane	0.00	0.50	0.13	0.00	1.00	0.75	0.54	0.67
Millard	0.67*	2.00*	0.50*	1.00*	0.00*	0.09*	3.14*	1.27*
Piute	1.44	0.95	0.50	0.58	0.95	1.87	0.50	1.00
Sevier	0.67	0.40	0.43	1.00	0.67	0.39	1.08	0.39
Washington	0.00*	0.50*	0.00	0.00*	0.00*	0.00*	1.63*	2.00*
Wayne	1.25	1.19	1.19	0.60	1.30	1.05	1.04	1.03
REGIONAL TOTALS	1.19	0.92	0.75	0.99	0.91	0.86	0.92	0.78
Northeastern Region								
Daggett	0.16	0.92	0.45	1.00	1.20	0.33*	0.73	0.48
Duchesne	0.50	0.67	1.00	0.91	1.00	1.14	1.19	0.67
Uintah	0.98	1.08	1.30	1.25	1.12	0.98	0.87	0.71
REGIONAL TOTALS	0.76	0.95	1.16	1.17	1.11	0.93	0.89	0.68
Southeastern Region								
Carbon	0.33*	0.60	1.24	1.09	1.04	0.44	0.29	0.50
Emery	1.50*	0.63	2.71	1.00	0.77	0.95	0.20*	0.88*
Grand	0.00	1.00	0.40	2.00	0.00	1.50	1.11	0.00
San Juan	0.00*	0.00	1.33	0.00	10.00	0.00*	0.00*	0.57*
REGIONAL TOTALS	0.90	0.60	1.44	1.13	1.40	0.63	0.47	0.59
Unknown counties	7.50	5.67	2.00	0.00	1.63	0.00	0.00	0.00
Closed areas	(29.95)	(9.04)	(10.58)	(6.06)	(3.25)	(4.65)	(9.65)	(10.52)
STATE TOTALS	0.72	0.78	0.84	0.89	0.76	0.71	0.78	0.67

*Closed season.

Table 8. Percentage distribution of sage grouse harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	18.95	14.20	19.61	16.63	16.47	22.39	17.21	12.34
Cache	4.83	1.31*	0.88*	5.02*	4.77*	2.72*	5.22	2.64*
Davis	0.92*	0.18*	0.35*	0.00*	0.00*	2.72*	0.26*	0.28*
Morgan	2.60	0.37*	2.45*	0.96*	1.36*	1.06*	0.78*	1.80*
Rich	3.90	2.80	4.90	8.12	12.04	11.65*	14.99	24.55
Summit	1.86	0.37*	0.88*	1.16*	1.81*	0.76*	1.30*	2.22*
Weber	3.34	1.12*	2.80*	0.96*	2.61*	2.12*	2.48*	2.91*
REGIONAL TOTALS	36.43	20.37	31.87	32.88	39.09	43.42	42.24	46.74
Central Region								
Juab	0.37*	2.98*	2.10*	0.58*	0.79*	0.30*	0.39*	0.97*
Salt Lake	0.18*	0.18*	5.78*	0.00*	0.11*	0.45*	0.00*	0.97*
Sanpete	1.30*	1.49*	1.58*	3.48*	1.25*	2.57*	1.17*	0.97*
Tooele	1.48*	0.56*	3.50*	4.25*	1.81	2.27	1.96*	0.97*
Utah	5.02*	4.67*	3.85	4.64	2.15	3.18	2.09	1.66*
Wasatch	1.86	0.75	2.63*	1.35	1.81*	0.91	0.78*	1.25*
REGIONAL TOTALS	10.22	10.65	19.44	14.31	7.95	9.68*	6.39	6.80
Southern Region								
Beaver	1.67	1.12	1.58	5.41	1.81	0.76	0.65	0.28
Garfield	9.66	6.54	4.38	4.64	3.86	8.62	7.17	2.36
Iron	1.30	4.48	2.45	3.48	1.59	2.42	1.43	1.94
Kane	0.00	0.18	0.18	0.00	0.11	0.45	0.91	0.28
Millard	0.74*	1.87*	0.18*	0.38*	0.00*	0.15*	2.87*	2.64*
Piute	4.27	3.36	0.35	1.35	2.04	4.24	0.65	2.77
Sevier	1.48	1.12	1.75	2.32	5.00	1.97	6.78	3.05
Washington	0.00*	0.37*	0.00*	0.00*	0.00*	0.00*	1.69*	0.55*
Wayne	7.44	8.03	6.65	2.32	8.40	6.51	6.39	10.13
REGIONAL TOTALS	26.58	27.10	17.50	19.92	22.84	25.11	28.55	24.00
Northeastern Region								
Daggett	0.55	2.24	0.88	2.32	2.04	0.76*	3.78	1.39
Duchesne	2.60	5.23	3.68	4.06	2.61	3.63	4.82	2.77
Uintah	15.98	19.43	18.21	23.21	17.61	12.41	11.8	14.98
REGIONAL TOTALS	19.15	26.91	22.78	29.59	22.27	16.79	20.47	19.14
Southeastern Region								
Carbon	0.92*	1.12	3.68	2.32	2.95	1.66	0.91	1.80
Emery	3.90*	0.93	3.33	0.19	1.13	2.87	0.13*	0.97*
Grand	0.00	0.18	0.35	0.77	0.00	0.45	1.30	0.00
San Juan	0.00*	0.00	0.70	0.00	2.27	0.00*	0.00*	0.55*
REGIONAL TOTALS	4.83	2.24	8.06	3.28	6.36	4.99	2.35	3.33
Unknown counties	2.78	12.71	0.35	0.00	1.47	0.00	0.00	0.00
Closed areas	(14.83)	(11.47)	(23.09)	(16.79)	(14.51)	(14.52)	(13.81)	(21.36)
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	16.89	15.15	17.53	14.11	15.99	16.81	14.71	15.16
Cache	6.38	4.71*	4.12*	11.87*	7.65*	4.28*	7.05	5.61*
Davis	3.72*	0.58*	1.18*	0.34*	1.63*	2.68*	0.82*	1.03*
Morgan	5.85	1.16*	4.42*	0.68*	2.83*	1.50*	1.84*	1.31*
Rich	5.58	7.28	7.07	8.26	11.26	13.17	13.89	16.46
Summit	5.71	1.46*	1.47*	1.89*	2.40*	0.75*	1.33*	2.25*
Weber	3.59	2.04*	4.12*	1.54*	3.09*	5.57	4.49*	5.80*
REGIONAL TOTALS	47.74	32.51	39.91	38.72	44.88	44.75	44.13	47.62
Central Region								
Juab	0.79*	0.58*	0.59*	0.86*	0.68*	0.96*	1.53*	1.22*
Salt Lake	0.53*	1.75*	1.91*	0.17*	0.17*	1.07*	0.51*	0.94*
Sanpete	1.46*	2.62*	3.53*	4.99*	4.12*	3.00*	0.92*	1.50*
Tooele	1.99*	1.89*	1.91*	3.44*	5.07	3.96	1.33*	1.87*
Utah	4.65*	8.01*	7.81	6.71	3.86	6.85	4.19	1.31*
Wasatch	4.78	3.06	3.39*	2.06	2.83*	0.43*	1.12*	1.78*
REGIONAL TOTALS	14.23	17.93	19.15	18.24	16.76	16.27	9.60	8.61
Southern Region								
Beaver	0.93	2.62	1.47	4.47	1.80	1.28	1.33	0.65
Garfield	5.18	6.56	5.45	2.75	2.49	5.35	7.56	3.09
Iron	0.93	1.89	2.50	2.40	1.97	2.78	1.94	1.40
Kane	0.00	0.29	1.18	0.00	0.08	0.43	1.33	0.28
Millard	0.79*	0.73*	0.29*	0.34*	0.00*	1.18*	0.72*	1.40*
Piute	2.12	2.77	0.59	2.06	1.63	1.61	1.02	1.87
Sevier	1.59	2.18	3.39	2.06	5.67	3.53	4.90	5.33
Washington	0.13*	0.58*	0.00	0.34*	0.42*	0.00*	0.82*	0.19*
Wayne	4.25	5.24	4.71	3.44	4.90	4.39	4.80	6.64
REGIONAL TOTALS	15.96	22.88	19.59	17.89	18.99	20.56	24.41	20.86
Northeastern Region								
Daggett	2.25	1.89	1.62	2.06	1.28	1.61*	4.09	1.96
Duchesne	3.84	6.12	3.09	3.95	1.97	2.25	3.17	2.81
Uintah	11.70	13.99	11.78	16.52	11.95	8.99	10.73	14.31
REGIONAL TOTALS	17.95	22.01	16.59	22.54	15.21	12.85	17.98	19.08
Southeastern Region								
Carbon	1.99*	1.46	2.50	1.89	2.14	2.68	2.45	2.43
Emery	1.86*	1.16	1.03	0.17	1.11	2.14	0.51*	0.75*
Grand	0.00	0.14	0.74	0.34	0.00	0.21	0.92	0.00
San Juan	0.00*	0.14	0.44	0.17	0.17	0.54*	0.00*	0.65*
REGIONAL TOTALS	3.85	2.91	4.71	2.57	3.43	5.57	3.88	3.84
Unknown counties	0.26	1.75	0.15	0.00	0.68	0.00	0.00	0.00
Closed areas	(17.91)	(26.21)	(26.90)	(26.46)	(25.82)	(23.57)	(15.94)	(26.29)
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, 1951-91.

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
Totals (1951-91)	305,184	451,147	537,626	--	--
Average (1951-90)	7,429	10,965	17,898	0.84	1.85

* 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, 1991.

Region and County	All Hunts					Complete 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	28	75	133	24	18	139	361	2,716	301	11	0.83
Cache	4	31	20	12	60	1	1	2	2	100	2.00
Davis	--	--	--	--	--	8	16	12	0	--	0.00
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	267	1,114	98	9	0.37
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	32	106	153	36	24	148	645	3,844	401	10	0.62
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	134	639	137	21	1.02
REGIONAL TOTALS	--	--	--	--	--	--	134	639	137	21	1.02
Northeastern Region											
Daggett	14	39	103	33	32	11	25	75	26	35	1.04
Duchesne	23	98	311	52	17	7	26	97	13	13	0.50
Uintah	74	181	526	164	31	53	118	326	131	40	1.11
REGIONAL TOTALS	111	318	940	249	26	71	169	498	170	34	1.01
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	143	424	1,093	285	26	219	948	4,981	708	14	0.75

Table 12. Sage grouse hunter success trend as determined by field bag check, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	17	1.06	19	1.39	16	1.21	21	1.28	25	1.77	11	0.83
Cache	19	0.71	–	--	–	--	–	--	--	--	100	2.00
Davis	--	–	–	--	–	--	–	--	–	--	–	0.00
Morgan	–	–	--	--	--	--	--	--	–	--	–	--
Rich	14	0.57	17	0.70	18	0.60	8	0.38	13	0.67	9	0.37
Summit	–	--	--	--	--	--	--	--	--	--	–	--
Weber	–	–	--	--	--	–	–	--	–	–	–	–
REGIONAL TOTALS	17	0.93	19	1.20	17	1.06	16	0.87	20	1.24	10	0.62
Central Region												
Juab	--	–	–	–	--	–	--	–	--	--	–	–
Salt Lake	--	–	–	–	–	--	--	--	–	--	–	--
Sanpete	–	–	--	--	–	–	--	--	–	–	--	--
Tooele	–	--	--	--	40	0.83	41	0.87	--	--	--	--
Utah	–	--	--	--	--	--	--	--	--	--	--	--
Wasatch	–	–	–	–	–	--	–	–	–	–	--	–
REGIONAL TOTALS	–	–	–	–	40	0.93	41	0.87	–	--	–	–
Southern Region												
Beaver	--	–	--	--	–	–	–	–	–	--	–	–
Garfield	8	0.20	50	1.71	65	1.82	64	0.33	–	--	–	–
Iron	–	–	0	0.00	14	0.70	–	0.64	–	–	–	–
Kane	–	–	--	--	--	–	--	–	–	--	–	–
Millard	–	--	–	--	–	–	–	–	–	–	–	–
Piute	–	--	–	–	--	–	–	--	--	--	–	–
Sevier	--	–	–	–	--	--	–	–	–	--	--	–
Washington	–	–	–	–	–	--	--	--	–	–	–	–
Wayne	22	1.23	21	0.95	23	1.12	–	–	23	0.81	21	1.02
REGIONAL TOTALS	22	1.20	22	0.97	24	1.15	227	0.51	23	0.81	21	1.02
Northeastern Region												
Daggett	47	1.78	80	1.67	40	0.67	6	0.33	17	0.67	35	1.04
Duchesne	94	2.00	75	1.50	--	–	–	--	50	1.00	13	0.50
Uintah	49	1.17	36	1.05	26	0.91	20	0.87	27	0.86	40	1.11
REGIONAL TOTALS	52	1.33	40	1.12	27	0.90	18	0.84	26	0.83	34	1.01
Southeastern Region												
Carbon	200	1.00	50	1.00	–	–	22	0.77	13	0.67	–	–
Emery	–	–	--	--	--	–	–	--	–	–	–	--
Grand	–	–	50	3.00	--	–	--	--	–	--	–	–
San Juan	–	–	–	–	--	--	–	–	–	--	–	–
REGIONAL TOTALS	200	1.00	50	1.73	–	--	22	0.77	13	0.67	–	–
STATE TOTALS	20	1.02	21	1.15	19	1.04	17	0.85	47	1.83	14	0.75

Table 13. Sex and age composition of harvested sage grouse, 1991.

Region and County	Sample Size	Adults M	Adults F	Adults Total	Young M	Young F	Young Total	Young/ 100 Adults	Young/ 100 Hens
Northern Region									
Box Elder	171	46	65	111	20	40	60	54	92
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	439	115	146	261	73	105	178	68	122
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	610	161	211	372	93	145	238	64	113
Central Region									
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Southern Region									
Beaver	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--
Wayne	333	49	99	148	91	94	185	125	187
REGIONAL TOTALS	333	49	99	148	91	94	185	125	187
Northeastern Region									
Daggett	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
Southeastern Region									
Carbon	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--
STATE TOTALS	943	210	310	520	184	239	423	81	136

Table 14. Sex and age composition of harvested sage grouse from 1988-91.

Region and County	1988					1989					1990					1991					Average 1988-90				
		Sex Ratio %		Young /			Sex Ratio %		Young /			Sex Ratio %		Young /			Sex Ratio %		Young /			Sex Ratio %		Young /	
	n	M	F	100H	100A	n	M	F	100H	100A	n	M	F	100H	100A	n	M	F	100H	100A	n	M	F	100H	100A
Northern Region																									
Box Elder	232	36	64	130	89	283	37	63	175	11	267	43	57	193	119	171	39	61	92	54					
Cache	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Davis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Morgan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Rich	59	32	68	123	84	99	35	65	178	136	141	39	61	232	156	439	50	50	122	68					
Summit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Weber	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
REGIONAL TOTALS	291	35	65	128	88	382	37	63	176	122	499	42	58	190	180	610	42	58	113	64	391	38	62	165	130
Central Region																									
Juab	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Sanpete	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Tooele	37	43	57	133	76	23	26	74	171	109	–	–	–	–	–	–	–	–	–	–					
Utah	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Wasatch	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
REGIONAL TOTALS	37	43	57	133	76	23	26	74	171	109	–	–	–	–	–	–	–	–	–	–	30	35	66	152	93
Southern Region																									
Beaver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Garfield	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Iron	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Kane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Millard	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Piute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Sevier	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Washington	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Wayne	335	45	55	263	186	209	32	68	116	97	366	42	58	233	156	333	42	58	187	125					
REGIONAL TOTALS	335	45	55	263	186	209	32	68	116	97	366	42	58	233	156	333	42	58	187	125	303	40	60	204	146
Northeastern Region																									
Daggett	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Duchesne	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Uintah	71	49	51	321	173	242	36	64	98	78	–	–	–	–	–	–	–	–	–	–					
REGIONAL TOTALS	71	49	51	321	173	242	36	64	98	78	–	–	–	–	–	–	–	–	–	–	157	43	58	210	126
Southeastern Region																									
Carbon	133	29	71	109	87	65	29	71	84	67	77	–	–	86	64	–	–	–	–	–					
Emery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
Grand	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
San Juan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–					
REGIONAL TOTALS	133	29	71	109	87	65	29	71	84	67	77	–	–	86	64	–	–	–	–	–	99	29	71	97	77
STATE TOTALS	942	31	69	166	114	921	35	65	133	98	942	42	58	205	134	943	42	58	136	81	935	36	64	168	115

FOREST GROUSE

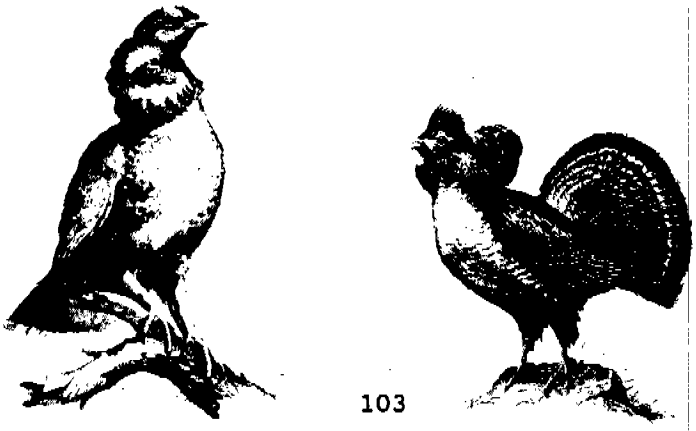
SUMMARY

Judging from harvest statistics for the fall of 1990, the 1991 breeding populations of blue and ruffed grouse were below average. However, blue grouse observed per 100 hours of effort during summer brood counts in 1991 increased 20 percent.

Production of blue and ruffed grouse decreased from 1990. Blue grouse observed per 100 hours of effort increased 20 percent from the previous year. A total of 51 forest grouse broods were observed during 1991 compared with 59 in 1990, 46 in 1989, 86 in 1988, 134 in 1987, 53 in 1986, and 78 in 1985.

Harvest statistics indicated decreased density of forest grouse. Total harvest decreased from 38,922 in 1990 to 34,897 in 1991, a 10 percent decrease. Total hunters and days afield also declined. Field bag check samples indicated decreased forest grouse numbers.

These data indicate that hunters are discovering forest grouse hunting and are using the resources more than 10 years ago. This is what we hoped to accomplish in the five-year strategic plan.



Brood Counts

Ruffed Grouse

Results of the annual random brood survey for 1991 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 1991 compared to 1990 and the previous 10-year average (1981-1990) follow:

	1991	Percent change from 1990	Average
Total ruffed grouse observed	55	-25	-49
Young per 100 adults	323	-9	+3
Mean brood size	4.00	-16	-7
Ruffed grouse observed per 100 hours	23	-23	-37
Total hours effort	236	-2	-30

Harvest statistics for 1990 indicated a below average breeding population for 1991.

Effort on brood surveys decreased by 2 percent and was 30 percent below average.

Grouse observed per 100 hours was 37 percent below average, while mean brood size was 7 percent above average indicating decreased production.

Blue Grouse

Results of the annual random brood survey for 1991 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 1991 compared to 1990 and the previous 10-year average (1981-90) follow:

	1991	Percent change from 1990	Average
Total blue grouse observed	264	-21	-39
Young per 100 adults	238	-13	-3
Mean brood size	3.88	-7	+3
Blue grouse observed per 100 hours	112	+20	+5
Total hours effort (forest grouse)	236	-34	-44

Harvest statistics for 1990 indicated the blue grouse breeding population for 1991 was again above average.

The 1991 summer surveys on blue grouse indicated that production decreased (13 percent) from 1990 and was about average.

Total observations decreased 21 percent, with a 34 percent decrease in effort. The number of grouse observed per 100 hours of effort increased from 1990 and was still 5 percent above average.

Harvest

Hunter Questionnaire

Results of the 1991 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, 1963-1991 are listed in Table 17. Harvest statistics for 1991 compared to 1990 and the previous 28-year average follow:

	1991	Percent change from 1990	Percent change from Average
Forest grouse hunters	14,421	-1	-2
Forest grouse harvested	34,897	-10	-2
Hunter-days afield	42,517	-4	+17
Forest grouse per hunter-day	0.82	-1	-16
Forest grouse per hunter	2.42	-4	+5
Percent ruffed grouse	34.60	+22	-11
Percent blue grouse	61.07	-9	+11
Percent unidentified	4.34	-6	-31

Total harvest decreased 10 percent from 1990 and was 2 percent below average. Overall, hunter success (grouse per hunter-day) was 16 percent below average, but the number of grouse harvested per hunter was 15 percent above average. Hunter pressure decreased slightly, but was still 17 percent above the 27-year average.

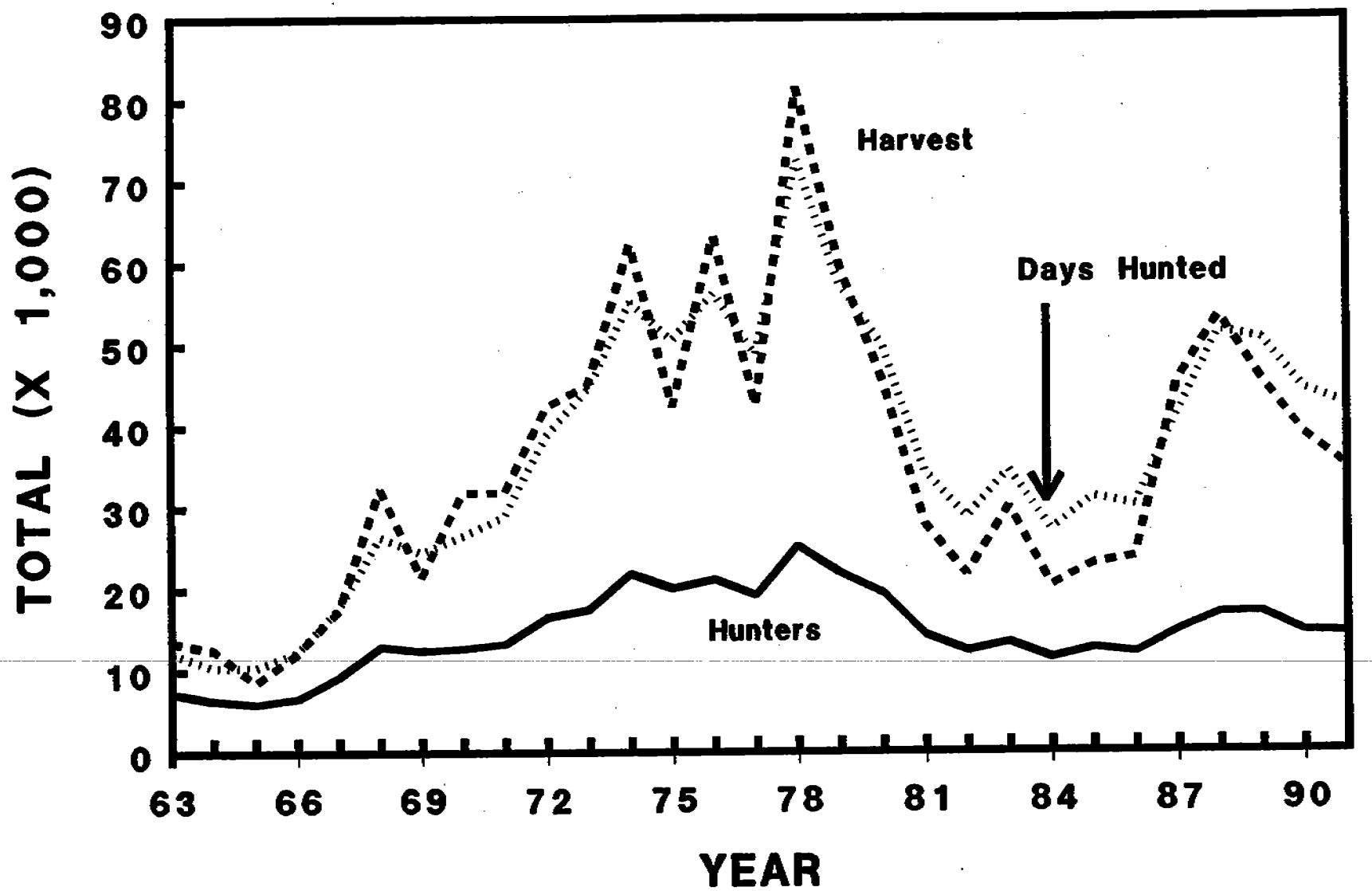


Figure 1. Statewide trends of forest grouse harvest statistics, 1963-91.

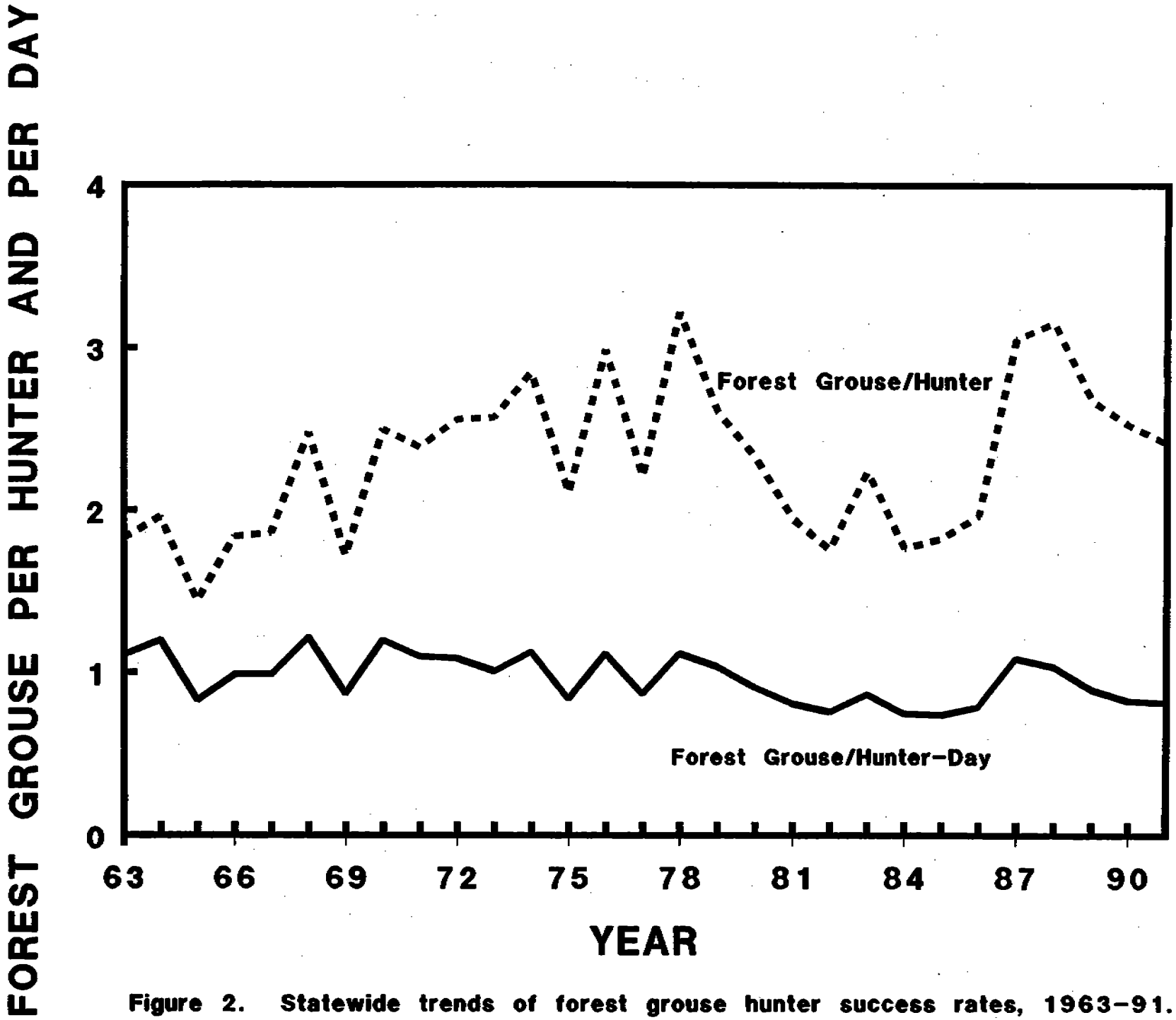


Figure 2. Statewide trends of forest grouse hunter success rates, 1963-91.

Field Bag Checks

A summary of field bag check data for 1991 is found in 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. Results of the 1991 survey compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Percent change from Average
Total hunters checked	521	+186	-26
Total hours hunted	797	+20	-72
Forest grouse per hunter (complete hunts)	0.50	-56	-25
Forest grouse bagged per 100 hours	32	-3	+94
Average hours per hunter-day (complete hunts)	1.53	-56	-62
Hours hunted per grouse bagged (complete hunts)	3.09	+1	-53

There was a substantial increase in numbers of hunters checked in 1991. Hunter success (grouse per hunter) decreased 56 percent from 1990 and was 25 percent below average.

Table 1. Ruffed grouse summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	1	1	5	5.00	--	--	1	2	5	250	--	--	24	--	24	29
Cache	1	1	3	3.00	3	6	--	4	9	225	--	17	--	--	17	76
Davis	--	--	--	--	--	--	--	--	--	--	--	13	--	8	21	--
Morgan	3	3	10	3.33	--	--	--	3	10	--	--	3	22	1	26	50
Rich	--	--	--	--	--	--	--	--	--	--	--	--	8	--	8	--
Summit	2	2	8	4.00	--	--	--	2	8	400	--	12	39	--	51	20
Weber	1	1	7	7.00	--	--	--	1	7	700	--	10	10	11	31	26
REGIONAL TOTALS	8	8	33	4.13	3	6	1	12	39	325	--	55	103	20	178	29
Central Region																
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	19	2	--	--	2	--
Sanpete	1	1	3	3.00	--	--	--	1	3	300	228	15	--	--	15	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	118	8	9	--	17	--
Wasatch	--	--	--	--	--	--	--	--	--	--	171	18	2	--	20	--
REGIONAL TOTALS	1	1	3	3.00	--	--	--	1	3	300	536	43	11	0	54	7
Southern Region																
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	30	2	--	--	2	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	30	2	--	--	2	--
Northeastern Region																
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Southeastern Region																
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--
San Juan	--	--	--	--	--	--	--	--	--	--	--	--	--	1	1	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	2	2	--
STATE TOTALS	9	9	36	4.00	3	6	1	13	42	323	566	100	114	22	236	23

Table 2. Trend of ruffed grouse young per 100 adults, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	--	--	300	--	--	433	150	50	--	300	250	
Cache	--	--	700	--	350	100	300	267	300	150	225	
Davis	--	--	--	--	--	--	--	136	--	--	--	
Morgan	--	--	200	--	0	--	--	--	--	--	--	
Rich	--	--	--	--	667	200	--	267	--	--	--	
Summit	200	--	--	--	200	400	500	--	300	450	400	
Weber	267	--	--	--	150	--	380	220	--	--	700	
REGIONAL TOTALS	250	--	286	--	308	300	337	141	300	300	355	275
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	92	--	--	--	--	150	0	--	--	--	--	
Sanpete	390	476	475	--	8,700	--	--	--	--	--	300	
Tooele	--	300	--	--	--	--	--	--	--	--	--	
Utah	300	275	--	--	--	460	320	300	300	--	--	
Wasatch	--	--	300	--	--	--	--	--	--	280	--	
REGIONAL TOTALS	282	414	392	--	700	322	320	300	300	280	300	368
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	500	--	--	--	--	--	--	450	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	333	--	
REGIONAL TOTALS	500	--	--	--	--	--	--	450	--	333	--	428
Northeastern Region												
Daggett	475	--	--	--	--	--	--	--	150	--	--	
Duchesne	700	--	--	--	--	--	--	--	400	600	--	
Uintah	--	--	--	--	--	--	400	--	267	600	--	
REGIONAL TOTALS	520	--	--	--	--	--	400	--	250	600	--	443
Southeastern Region												
Carbon	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	--	--	300	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	300	--	--	--	--	300
STATE TOTALS	311	404	353	--	336	312	306	160	277	356	350	313

Table 3. Trend of average brood size for ruffed grouse, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	--	--	3.00	--	--	2.00	3.00	3.00	--	3.00	5.00	
Cache	--	--	7.00	--	3.50	1.00	3.14	4.00	3.00	3.00	3.00	
Davis	--	--	--	--	--	--	--	4.00	--	--	--	
Morgan	--	--	5.00	--	--	--	--	--	--	--	3.33	
Rich	--	--	--	--	6.67	3.00	--	--	3.00	--	--	
Summit	2.00	--	--	--	3.33	4.00	5.00	--	3.00	4.50	4.00	
Weber	4.00	--	--	--	3.00	--	4.75	3.67	--	--	7.00	
REGIONAL TOTALS	3.33	--	5.00	--	4.44	2.60	3.93	3.64	3.00	3.75	4.13	3.71
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	2.20	--	--	--	--	--	--	--	--	--	--	
Sanpete	5.47	5.47	4.75	--	7.00	--	--	--	--	--	3.00	
Tooele	--	4.00	--	--	--	--	--	--	--	--	--	
Utah	3.00	--	--	--	--	4.60	3.20	3.00	3.00	--	--	
Wasatch	--	--	9.00	--	--	--	--	--	--	4.70	--	
REGIONAL TOTALS	4.57	5.13	5.22	--	7.00	4.60	3.20	3.00	3.00	4.70	3.00	4.49
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	5.00	--	--	--	--	--	--	4.50	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	5.00	--	
REGIONAL TOTALS	5.00	--	--	--	--	--	--	4.50	--	5.00	--	4.83
Northeastern Region												
Daggett	4.75	--	--	--	--	--	--	--	3.00		--	
Duchesne	7.00	--	--	--	--	--	--	--	4.00	6.00	--	
Uintah	--	--	--	--	--	--	4.00	--	4.00	6.00	--	
REGIONAL TOTALS	5.20	--	--	--	--	--	4.00	--	3.75	6.00	--	4.74
Southeastern Region												
Carbon	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	--	--	3.00	--	--	--	--	
Grand	--	--	--	--	--	--	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	--	3.00	--	--	--	--	3.00
STATE TOTALS	4.57	5.13	5.15	--	4.70	3.60	3.75	3.71	3.30	4.75	4.00	4.30

Table 4. Trend of ruffed grouse observed per 100 hours, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1980-90
Northern Region												
Box Elder	--	--	38	--	--	80	31	100	--	64	29	
Cache	--	3	6	--	17	20	58	17	46	5	76	
Davis	--	--	--	--	--	--	--	114	--	--	--	
Morgan	--	--	57	--	2	--	--	--	--	--	50	
Rich	--	--	--	--	1,150	53	--	50	--	--	--	
Summit	--	--	--	--	52	36	900	--	9	40	20	
Weber	31	--	--	--	21	--	267	178	--	--	26	
REGIONAL TOTALS	10	1	1	--	26	30	56	62	22	13	32	25
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	70	--	--	--	--	167	--	--	--	--	--	
Sanpete	515	293	271	--	160	--	--	--	--	--	12	
Tooele	--	880	--	--	--	--	--	--	--	--	--	
Utah	14	38	3	--	--	400	50	133	133	--	--	
Wasatch	3	--	--	86	--	--	25	--	--	46	--	
REGIONAL TOTALS	98	144	63	86	14	88	30	133	133	28	6	82
Southern Region												
Beaver	--	--	--	--	--	--	--	--	--	--	--	
Garfield	--	--	--	--	--	--	--	--	--	--	--	
Iron	--	--	--	--	--	--	--	--	--	--	--	
Kane	--	--	--	--	--	--	--	--	--	--	--	
Millard	--	--	--	--	--	--	--	--	--	--	--	
Piute	--	--	--	--	--	--	--	--	--	--	--	
Sevier	2	--	--	--	--	--	--	138	--	--	--	
Washington	--	--	--	--	--	--	--	--	--	--	--	
Wayne	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	2	--	--	--	--	--	--	138	--	433	--	191
Northeastern Region												
Daggett	164	--	--	--	--	--	--	--	109	--	--	
Duchesne	12	--	--	--	--	--	4	--	33	175	--	
Uintah	350	--	--	--	--	--	68	--	28	180	--	
REGIONAL TOTALS	26	--	--	--	--	--	28	--	28	105	--	47
Southeastern Region												
Carbon	--	--	--	--	--	--	--	--	--	--	--	
Emery	--	--	--	--	--	0	400	--	--	--	--	
Grand	--	--	--	--	--	0	--	--	--	--	--	
San Juan	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	0	400	--	--	--	--	200
STATE TOTALS	27	66	19	86	22	47	45	46	26	30	23	41

Table 5. Blue grouse summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	1	1	4	4.00	–	–	–	1	4	400	–	–	24	–	24	21
Cache	4	4	18	4.50	–	6	–	4	24	600	–	17	–	–	17	165
Davis	3	3	13	4.33	–	–	2	5	13	260	–	13	–	8	21	86
Morgan	–	–	–	–	–	–	–	–	–	–	–	3	22	1	26	–
Rich	2	2	12	6.00	–	–	–	2	12	600	–	–	8	–	8	175
Summit	5	5	17	3.40	–	–	6	11	17	155	–	12	39	–	51	55
Weber	4	4	13	3.25	–	–	3	7	13	186	–	10	10	11	31	65
REGIONAL TOTALS	19	19	77	4.05	–	6	11	30	83	277	–	55	103	20	178	63
Central Region																
Juab	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Salt Lake	–	–	–	–	–	–	–	–	–	–	19	2	–	–	2	–
Sanpete	–	–	–	–	–	–	–	–	–	–	228	15	–	–	15	–
Tooele	5	5	18	3.60	4	12	4	13	30	231	–	–	–	–	–	–
Utah	9	9	29	3.22	3	5	8	20	34	170	118	8	9	–	17	318
Wasatch	–	–	–	–	–	–	–	–	–	–	171	18	2	–	20	–
REGIONAL TOTALS	14	14	47	3.36	7	17	12	33	64	194	536	43	11	–	54	180
Southern Region																
Beaver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Garfield	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Iron	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Millard	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Piute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sevier	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Washington	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wayne	7	7	32	4.57	–	–	6	13	32	246	30	2	–	–	2	2,250
REGIONAL TOTALS	7	7	32	4.57	–	–	6	13	32	246	30	2	–	–	2	2,250
Northeastern Region																
Daggett	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Duchesne	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Uintah	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Southeastern Region																
Carbon	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Emery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grand	1	1	2	2.00	–	–	–	1	2	200	–	–	–	1	1	300
San Juan	1	1	5	5.00	–	–	–	1	5	500	–	–	–	1	1	600
REGIONAL TOTALS	2	2	7	3.50	–	–	–	2	7	350	–	–	–	2	2	450
STATE TOTALS	42	42	163	3.88	7	23	29	78	186	238	566	100	114	22	236	112

Table 6. Trend of blue grouse young per 100 adults, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	360	--	125	350	--	100	--	--	700	144	400	
Cache	254	--	467	--	167	--	300	363	257	300	600	
Davis	--	--	300	250	183	150	222	248	200	480	260	
Morgan	200	--	--	300	900	--	433	--	--	--	--	
Rich	--	--	--	--	--	350		--	--	--	600	
Summit	389	--	--	500	450	--	500	--	200	178	155	
Weber	221	400	--	--	400	--	380	400	--	--	186	
REGIONAL TOTALS	271	400	220	300	269	222	300	279	244	292	277	280
Central Region												
Juab	300	--	400	400	0	180	--	--	--	700	--	
Salt Lake	200	38	--	--	--	--	--	--	--	--	--	
Sanpete	--	471	--	--	--	--	600	--	80	--	--	
Tooele	138	--	138	--	168	167	218	650	650	276	231	
Utah	88	100	200	--	175	--	256	267	267	286	170	
Wasatch	--	200	250	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	153	317	156	400	157	169	273	486	317	286	194	271
Southern Region												
Beaver	200	214	700	250	200	267	133	109	--	--	--	
Garfield	--	340	300	241	200	245	160	--	23	--	--	
Iron	--	--	--	--	--	--	300	--	--	--	--	
Kane	--	--	267	--	255	500	475	250	--	--	--	
Millard	--	235	--	100	300	200	425	60	--	--	--	
Piute	387	350	--	200	300	300	--	--	--	--	--	
Sevier	155	238	100	80	417	--	150	90	--	--	--	
Washington	500	--	367	--	--	233	533	--	--	--	--	
Wayne	--	--	400	--	600	--	350	375	--	--	246	
REGIONAL TOTALS	253	245	237	164	282	279	230	118	23	--	246	203
Northeastern Region												
Daggett	442	469	500	--	--	282	331	318	364	233	--	
Duchesne	257	382	340	--	--	228	129	190	--	600	--	
Uintah	380	238	311	--	--	140	500	233	138	60	--	
REGIONAL TOTALS	371	381	402	--	--	235	305	254	268	223	--	305
Southeastern Region												
Carbon	200	--	700	300	150	500	--	--	--	--	--	
Emery	--	--	--	--	--	--	400	100	--	--	--	
Grand	100	--	--	25	200	260	--	227	300	--	200	
San Juan	300	--	100	175	300	--	300	213	300	--	500	
REGIONAL TOTALS	208	--	200	140	206	300	140	200	75	--	350	184
STATE TOTALS	274	297	272	190	229	225	268	207	225	274	238	246

Table 7. Trend of average brood size for blue grouse, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	3.60	--	5.00	7.00	--	2.00	--	--	7.00	3.20	4.00	
Cache	3.67	--	4.33	--	3.33	--	3.67	3.63	3.60	3.70	4.50	
Davis	--	--	3.00	5.50	3.67	3.00	2.83	4.00	4.50	6.50	4.33	
Morgan	2.00	--	--	3.00	9.00	--	4.33	--	--	--	--	
Rich	--	--	--	--	--	--		--	--	--	6.00	
Summit	3.89	--	--	5.00	4.50	--	5.00	--	3.00	4.00	3.40	
Weber	3.57	4.00	--	--	5.33	4.00	4.75	4.00	--	--	3.25	
REGIONAL TOTALS	3.65	4.00	4.20	4.83	4.73	3.25	3.88	3.84	3.86	4.30	4.05	4.05
Central Region												
Juab	4.00	--	4.00	4.00	0.00	--	--	--	--	7.00	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	5.44	--	--	--	--	6.00	--	2.00	--	--	
Tooele	3.20	--	3.83	--	3.38	3.20	3.43	6.00	6.00	3.13	3.60	
Utah	7.00	3.00	4.00	--	3.50	--	3.45	5.00	5.00	5.00	3.22	
Wasatch	--	3.00	5.00	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	3.89	5.05	4.00	4.00	3.43	3.20	3.62	4.67	4.20	4.00	3.36	4.01
Southern Region												
Beaver	4.00	2.60	7.00	3.33	2.00	2.67	4.00	4.00	--	--	--	
Garfield	--	3.40	3.00	3.22	--	4.50	3.29	--	--	--	--	
Iron	--	--	--	--	--	--	3.50	--	--	--	--	
Kane	--	--	4.00	--	--	1.00	4.75	4.00	--	--	--	
Millard	--	3.64	--	2.67	4.00	4.00	4.25	1.50	--	3.00	--	
Piute	4.67	3.50	--	4.00	3.00	3.00		--	--	--	--	
Sevier	3.44	4.04	2.50	2.00	4.16	--	4.57	2.33	--	--	--	
Washington	5.00	--	3.67	--	--	3.50	5.33	--	--	--	--	
Wayne	--	--	4.00	--	6.00	--	3.50	3.75	--	--	4.57	
REGIONAL TOTALS	4.15	3.70	3.58	2.95	3.21	3.53	4.12	2.71	--	3.00	4.57	3.44
Northeastern Region												
Daggett	4.45	4.91	4.33	--	--	3.75	4.71	3.20	3.89	3.50	--	
Duchesne	3.60	3.88	3.40	--	--	3.25	2.50	2.50	--	6.00	--	
Uintah	4.75	2.71	5.60	--	--	4.00	5.00	3.50	2.20	--	--	
REGIONAL TOTALS	4.35	4.00	4.63	--	--	3.56	4.52	3.00	3.29	4.33	--	3.96
Southeastern Region												
Carbon	2.00	--	7.00	3.00	3.00	5.00	--	--	--	--	--	
Emery		--	--	--	--	--	4.00	4.00	--	--	--	
Grand	2.50	--	--	--	3.00	3.25	--	2.78	3.00	--	2.00	
San Juan	3.00	--	4.00	1.75	3.00	--	3.00	3.00	3.00	--	5.00	
REGIONAL TOTALS	2.60	--	5.50	2.17	3.00	3.60	3.50	2.93	3.00	--	3.50	3.29
STATE TOTALS	3.97	4.06	4.29	3.18	3.56	3.44	4.00	3.22	3.61	4.19	3.88	3.75

Table 8. Trend of blue grouse observed per 100 hours, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	230	–	64	38	–	20	0	–	–	200	21	
Cache	74	–	14	–	77	–	71	56	114	108	165	
Davis	7	–	33	110	94	50	232	300	120	426	86	
Morgan	30	–	4	200	23	4	59	–	17		–	
Rich	–	–	–	–	–	53	0	0	–	–	175	
Summit	293	–	–	12	38	–	900	–	21	100	55	
Weber	174	71	4	–	167	100	267	56	–	–	65	
REGIONAL TOTALS	121	20	15	28	58	27	109	90	79	133	63	68
Central Region												
Juab	73	–	29	125	30	156	0	–	–	800	–	
Salt Lake	36	48	14	–	–	–	400	–	–	–	–	
Sanpete	–	281	–	–	–	–	1,400	–	14	4	–	
Tooele	271	–	344		536	444	206	1,000	1,000	233	–	
Utah	52	36	32	–	165	–	229	367	367	113	318	
Wasatch	–	53	50	–	–	–	0	–	–	–	–	
REGIONAL TOTALS	55	127	94	17	183	254	194	683	72	75	180	175
Southern Region												
Beaver	46	220	133	233	33	137	175	164	–	–	–	
Garfield	–	–	–	–	122	141	195		–	100	–	
Iron	–	–	–	–	–	–	1,200		–	–	–	
Kane	–	–	122	–	213	257	383	127	–	–	–	
Millard	–	248	15	107	133	200	525	100	–	–	–	
Piute	557	225	–	200	67	266	–	–	–	–	–	
Sevier	20	48	50	72	155	–	275	738	–	–	–	
Washington	800	–	117	–	–	333	950	–	–	–	–	
Wayne	–	–	–	–	700	–	450	475	–	–	2,250	
REGIONAL TOTALS	41	74	80	122	140	178	309	247	–	200	2,250	155
Northeastern Region												
Daggett	736	389	632	–	–	300	1,255	230	265	286	–	
Duchesne	75	126	51	–	–	51	64	121	–	175	–	
Uintah	308	54	239	–	–	600	55	37	48	320	–	
REGIONAL TOTALS	228	138	232	–	–	126	286	120	95	46	–	159
Southeastern Region												
Carbon	17	–	80	53	33	60	–	–	–	–	–	
Emery	–	–	–	–	–	–	500	–	–	–	–	
Grand	–	–	–	50	360	120	300	–	89	–	300	
San Juan	218	–	100	73	53	–	400	–	400	–	600	
REGIONAL TOTALS	128	–	90	60	123	96	400	–	85	–	450	140
STATE TOTALS	93	91	83	55	101	110	197	166	81	93	112	107

Table 9. Summary of effort expended on forest grouse brood counts, 1991.

Region and County	Vehicle Miles	Hours of Effort			
		Vehicle	Horse	Walk	Total
Northern Region					
Box Elder	--	--	24	--	24
Cache	--	17	--	--	17
Davis	--	13	--	8	21
Morgan	--	3	22	1	26
Rich	--	--	8	--	8
Summit	--	12	39	--	51
Weber	--	10	10	11	31
REGIONAL TOTALS	--	55	103	20	178
Central Region					
Juab	--	--	--	--	--
Salt Lake	19	2	--	--	2
Sanpete	228	15	--	--	15
Tooele	--	--	--	--	--
Utah	118	8	9	--	17
Wasatch	171	18	2	--	20
REGIONAL TOTALS	536	43	11	--	54
Southern Region					
Beaver	--	--	--	--	--
Garfield	--	--	--	--	--
Iron	--	--	--	--	--
Kane	--	--	--	--	--
Millard	--	--	--	--	--
Piute	--	--	--	--	--
Sevier	--	--	--	--	--
Washington	--	--	--	--	--
Wayne	30	2	--	--	2
REGIONAL TOTALS	30	2	--	--	2
Northeastern Region					
Daggett	--	--	--	--	--
Duchesne	--	--	--	--	--
Uintah	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--
Southeastern Region					
Carbon	--	--	--	--	--
Emery	--	--	--	--	--
Grand	--	--	--	1	1
San Juan	--	--	--	1	1
REGIONAL TOTALS	--	--	--	2	2
STATE TOTALS	566	100	114	22	236

Table 10. Summary of blue grouse hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	23	1,078	1,322	1.23	4.75	6.20
CACHE	72	3,879	3,740	0.96	17.08	17.55
DAVIS	13	521	626	1.20	2.30	2.94
MORGAN	9	452	434	0.96	1.99	2.04
RICH	17	1,113	748	0.67	4.90	3.51
SUMMIT	31	2,365	1,026	0.43	10.41	4.82
WEBER	21	1,217	991	0.81	5.36	4.65
REGIONAL TOTALS	186	10,629	8,889	0.84	46.79	41.72
CENTRAL REGION						
JUAB	5	156	173	1.11	0.69	0.82
SALT LAKE	7	243	156	0.64	1.07	0.73
SANPETE	19	800	1,113	1.39	3.52	5.22
TOOELE	23	974	1,200	1.23	4.29	5.63
UTAH	22	1,182	1,739	1.47	5.21	8.16
WASATCH	16	835	504	0.60	3.68	2.37
REGIONAL TOTALS	92	4,192	4,888	1.17	18.45	22.94
SOUTHERN REGION						
BEAVER	12	661	626	0.95	2.91	2.94
GARFIELD	10	382	330	0.86	1.68	1.55
IRON	6	748	469	0.63	3.29	2.20
KANE	4	434	104	0.24	1.91	0.49
MILLARD	12	626	661	1.06	2.76	3.10
PIUTE	4	191	139	0.73	0.84	0.65
SEVIER	45	2,539	2,365	0.93	11.18	11.10
WASHINGTON	2	69	173	2.50	0.31	0.82
WAYNE	6	156	173	1.11	0.69	0.82
REGIONAL TOTALS	101	5,810	5,044	0.87	25.58	23.67
NORTHEASTERN REGION						
DAGGETT	8	243	365	1.50	1.07	1.71
DUCHESNE	9	295	469	1.59	1.30	2.20
UINTAH	23	1,235	1,287	1.04	5.44	6.04
REGIONAL TOTALS	40	1,774	2,122	1.20	7.81	9.96
SOUTHEASTERN REGION						
CARBON	4	86	173	2.00	0.38	0.82
EMERY	1	17	52	3.00	0.08	0.24
GRAND	2	69	52	0.75	0.31	0.24
SAN JUAN	3	139	86	0.63	0.61	0.41
REGIONAL TOTALS	10	313	365	1.17	1.38	1.71
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	429	22,719	21,310	0.94	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, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	15	904	591	0.65	5.78	4.90
CACHE	49	2,974	2,070	0.70	19.02	17.15
DAVIS	6	487	382	0.79	3.11	3.17
MORGAN	12	574	574	1.00	3.67	4.76
RICH	12	556	469	0.84	3.56	3.89
SUMMIT	24	1,530	1,235	0.81	9.79	10.23
WEBER	21	1,409	817	0.58	9.01	6.77
REGIONAL TOTALS	139	8,437	6,140	0.73	53.95	50.87
CENTRAL REGION						
JUAB	3	52	69	1.33	0.33	0.58
SALT LAKE	4	191	121	0.64	1.22	1.01
SANPETE	11	556	347	0.63	3.56	2.88
TOOELE	3	104	156	1.50	0.67	1.30
UTAH	24	1,078	695	0.65	6.90	5.76
WASATCH	28	1,287	1,061	0.82	8.23	8.79
REGIONAL TOTALS	73	3,270	2,452	0.75	20.91	20.32
SOUTHERN REGION						
BEAVER	6	365	208	0.57	2.34	1.73
GARFIELD	1	17	17	1.00	0.11	0.14
IRON	1	86	86	1.00	0.56	0.72
KANE	1	347	52	0.15	2.22	0.43
MILLARD	4	139	121	0.88	0.89	1.01
PIUTE	4	347	487	1.40	2.22	4.03
SEVIER	22	1,391	1,148	0.83	8.90	9.51
WASHINGTON	0	0	0	0.00	0.00	0.00
WAYNE	1	52	69	1.33	0.33	0.58
REGIONAL TOTALS	40	2,748	2,191	0.80	17.58	18.16
NORTHEASTERN REGION						
DAGGETT	5	173	191	1.10	1.11	1.59
DUCHESNE	8	330	295	0.89	2.11	2.45
UINTAH	11	347	434	1.25	2.22	3.60
REGIONAL TOTALS	24	852	922	1.08	5.45	7.64
SOUTHEASTERN REGION						
CARBON	3	69	52	0.75	0.44	0.43
EMERY	3	104	69	0.67	0.67	0.58
GRAND	2	104	208	2.00	0.67	1.73
SAN JUAN	2	52	34	0.67	0.33	0.29
REGIONAL TOTALS	10	330	365	1.11	2.11	3.03
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	286	15,639	12,073	0.77	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, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	51	2,800	1,931	0.69	6.59	5.53
CACHE	152	6,610	6,088	0.92	15.55	17.45
DAVIS	30	1,200	1,008	0.84	2.82	2.89
MORGAN	28	1,217	1,148	0.94	2.86	3.29
RICH	48	2,104	1,304	0.62	4.95	3.74
SUMMIT	53	3,287	2,383	0.72	7.73	6.83
WEBER	69	3,444	1,757	0.51	8.10	5.03
REGIONAL TOTALS	431	20,667	15,662	0.76	48.61	44.77
CENTRAL REGION						
JUAB	14	400	260	0.65	0.94	0.75
SALT LAKE	13	504	278	0.55	1.19	0.80
SANPETE	44	1,548	1,513	0.98	3.64	4.34
TOOELE	33	1,374	1,409	1.03	3.23	4.04
UTAH	68	2,696	2,609	0.97	6.34	7.48
WASATCH	52	2,035	1,548	0.76	4.79	4.44
REGIONAL TOTALS	224	8,559	7,619	0.89	20.13	21.83
SOUTHERN REGION						
BEAVER	20	956	904	0.95	2.25	2.59
GARFIELD	12	417	347	0.83	0.98	1.00
IRON	17	1,200	678	0.57	2.82	1.94
KANE	7	539	330	0.61	1.27	0.95
MILLARD	19	800	782	0.98	1.88	2.24
PIUTE	11	713	713	1.00	1.68	2.04
SEVIER	78	3,792	3,583	0.94	8.92	10.27
WASHINGTON	4	104	191	1.83	0.25	0.55
WAYNE	12	382	226	0.59	0.90	0.65
REGIONAL TOTALS	180	8,907	7,758	0.87	20.95	22.23
NORTHEASTERN REGION						
DAGGETT	19	591	574	0.97	1.39	1.65
DUCHESNE	24	1,008	782	0.78	2.37	2.24
UINTAH	42	1,739	1,739	1.00	4.09	4.99
REGIONAL TOTALS	85	3,340	3,096	0.93	7.86	8.87
SOUTHEASTERN REGION						
CARBON	11	382	243	0.64	0.90	0.70
EMERY	5	156	121	0.78	0.37	0.35
GRAND	3	121	260	2.14	0.29	0.75
SAN JUAN	8	382	173	0.45	0.90	0.50
REGIONAL TOTALS	27	1,043	800	0.77	2.45	2.29
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	947	42,517	34,897	0.82	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 13. Summary of forest grouse bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.60	0.45	0.60	0.68	1.03	0.99	0.97	0.69
Cache	0.76	0.90	0.96	1.07	1.24	0.84	0.75	0.92
Davis	0.66	0.50	0.50	0.71	0.98	0.78	1.02	0.84
Morgan	0.44	0.88	0.64	1.00	0.99	1.23	0.94	0.94
Rich	0.86	0.75	0.39	1.56	0.92	0.42	0.52	0.62
Summit	0.54	0.70	0.63	1.25	0.86	0.89	0.49	0.72
Weber	0.60	0.60	0.85	1.41	0.99	1.00	0.73	0.51
REGIONAL TOTALS	0.66	0.71	0.76	1.12	1.07	0.88	0.74	0.76
Central Region								
Juab	0.43	1.00	0.14	1.14	0.86	0.71	0.88	0.65
Salt Lake	1.25	0.65	0.75	1.05	0.87	0.77	0.81	0.55
Sanpete	0.99	0.72	0.67	1.12	0.84	0.65	0.82	0.98
Tooele	0.40	1.00	0.89	1.24	1.33	1.75	1.03	1.03
Utah	0.84	0.86	0.59	1.04	1.08	0.99	0.91	0.97
Wasatch	0.43	0.59	0.51	.94	0.74	0.78	0.83	0.76
REGIONAL TOTALS	0.78	0.75	0.62	1.07	0.97	0.90	0.90	0.89
Southern Region								
Beaver	1.05	0.59	1.00	0.91	1.31	0.86	0.85	0.95
Garfield	0.67	0.79	0.27	0.57	1.00	1.27	0.74	0.83
Iron	0.59	0.94	1.21	0.74	1.08	0.79	0.69	0.57
Kane	0.67	0.78	0.14	2.33	1.50	1.25	0.81	0.61
Millard	0.64	0.50	1.14	0.75	1.36	1.26	1.49	0.98
Piute	1.27	0.94	1.42	1.19	1.34	1.00	1.25	1.00
Sevier	0.73	0.77	0.88	1.00	1.18	1.23	1.02	0.94
Washington	0.00	2.14	2.01	0.17	0.10	0.00	0.00	1.83
Wayne	0.34	1.09	0.33	0.90	0.25	0.76	0.86	0.59
REGIONAL TOTALS	0.82	0.82	0.98	0.93	1.16	1.13	0.99	0.87
Northeastern Region								
Daggett	0.47	0.94	1.19	1.10	0.65	0.42	0.81	0.97
Duchesne	0.67	0.60	1.07	1.29	0.98	0.92	0.69	0.78
Uintah	1.23	0.94	1.19	1.63	0.91	0.67	1.09	1.00
REGIONAL TOTALS	0.96	0.83	1.16	1.43	0.88	0.69	0.93	0.93
Southeastern Region								
Carbon	0.00	0.71	0.83	0.92	0.48	0.37	0.47	0.64
Emery	0.90	0.35	0.65	0.96	1.06	0.60	0.81	0.78
Grand	1.60	0.64	1.29	1.91	0.81	1.14	1.12	2.14
San Juan	0.67	0.20	0.67	1.00	0.67	1.00	0.83	0.45
REGIONAL TOTALS	0.86	0.52	0.81	1.14	0.79	0.57	0.69	0.77
Unknown Counties	1.00	1.00	0.00	0.55	0.70	0.76	0.00	0.00
STATE TOTALS	0.75	0.74	0.79	1.09	1.04	0.90	0.83	0.82

Table 14. Percentage distribution of forest grouse harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	3.38	2.23	2.59	1.62	3.83	5.02	6.51	5.53
Cache	15.72	17.35	21.23	14.98	21.10	15.18	15.47	17.45
Davis	4.48	5.66	2.50	1.83	3.14	1.96	3.28	2.89
Morgan	2.88	3.90	3.02	1.13	2.64	6.93	3.28	3.29
Rich	3.78	4.26	2.24	4.05	4.55	2.60	2.89	3.74
Summit	2.49	3.52	2.93	4.65	3.55	4.61	3.45	6.83
Weber	7.86	4.91	10.44	6.65	9.53	10.35	8.07	5.03
REGIONAL TOTALS	49.59	41.85	44.96	34.93	48.37	46.65	42.96	44.77
Central Region								
Juab	1.19	1.02	0.26	1.29	1.12	1.32	0.78	0.75
Salt Lake	4.48	2.41	1.81	1.18	1.40	1.50	0.72	0.80
Sanpete	6.97	5.84	4.57	6.43	4.70	4.56	5.40	4.34
Tooele	1.00	2.87	4.74	3.94	4.17	5.02	6.68	4.04
Utah	13.34	9.65	8.02	10.22	9.47	7.62	8.74	7.48
Wasatch	2.58	5.01	3.02	3.94	3.05	5.47	2.89	4.44
REGIONAL TOTALS	29.56	26.80	22.43	27.04	23.94	25.49	25.21	21.83
Southern Region								
Beaver	2.09	2.13	0.86	1.56	0.65	0.82	1.61	2.59
Garfield	1.39	1.39	0.26	0.64	0.74	1.73	1.45	1.00
Iron	1.59	2.87	3.53	1.40	1.77	1.41	1.39	1.94
Kane	0.59	0.65	0.08	0.37	0.18	0.23	0.72	0.95
Millard	0.70	0.65	3.45	1.13	1.77	3.51	2.89	2.24
Piute	5.57	1.48	2.33	2.05	2.80	0.96	3.34	2.04
Sevier	4.38	4.45	6.56	11.35	10.84	9.90	7.90	10.27
Washington	0.00	1.39	0.52	0.05	0.03	0.00	0.00	0.55
Wayne	0.40	1.11	0.17	0.48	0.09	0.73	1.00	0.65
REGIONAL TOTALS	16.72	16.14	17.77	19.09	18.92	19.92	20.31	22.23
Northeastern Region								
Daggett	0.89	1.48	3.19	1.73	0.93	0.46	1.39	1.65
Duchesne	1.59	2.50	2.67	4.75	1.55	1.60	1.39	2.24
Uintah	7.56	6.21	6.03	8.27	3.64	4.33	4.90	4.99
REGIONAL TOTALS	10.05	10.20	11.91	14.76	6.14	6.38	7.68	8.87
Southeastern Region								
Carbon	0.00	2.23	0.86	0.64	0.43	0.50	1.34	0.70
Emery	1.79	1.11	0.95	1.29	1.15	0.41	1.17	0.35
Grand	0.79	1.48	0.77	1.13	0.68	0.36	1.06	0.75
San Juan	0.40	0.18	0.34	0.43	0.12	0.18	0.28	0.50
REGIONAL TOTALS	2.99	5.01	2.93	3.51	2.40	1.46	3.84	2.29
Unknown Counties	0.10	0.00	0.00	0.64	0.21	0.73	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	4.25	3.63	4.65	2.60	3.84	4.55	5.60	6.59
Cache	15.35	14.18	14.69	15.26	17.65	16.22	17.22	15.55
Davis	5.07	8.29	3.90	2.84	3.32	2.25	2.69	2.82
Morgan	4.91	3.29	3.15	1.24	2.77	5.08	2.92	2.86
Rich	3.28	4.18	4.05	2.84	5.13	5.53	4.63	4.95
Summit	3.42	3.70	4.50	4.08	4.26	4.63	5.83	7.73
Weber	9.69	6.02	9.00	5.14	9.94	9.34	9.21	8.10
REGIONAL TOTALS	45.97	43.29	43.93	34.02	46.93	47.60	48.10	48.61
Central Region								
Juab	2.08	0.75	1.50	1.24	1.35	1.68	0.74	0.94
Salt Lake	2.68	2.74	2.40	1.24	1.67	1.76	0.74	1.19
Sanpete	5.29	5.96	4.65	6.27	5.77	6.31	5.51	3.64
Tooele	1.86	2.12	3.90	3.49	3.26	2.58	5.42	3.23
Utah	11.84	8.29	10.49	10.76	9.10	6.88	8.01	6.34
Wasatch	4.54	6.23	4.50	4.61	4.29	6.31	2.92	4.79
REGIONAL TOTALS	28.31	26.09	27.44	27.63	25.46	25.52	23.33	20.13
Southern Region								
Beaver	1.49	2.67	1.05	1.89	0.51	0.86	1.57	2.25
Garfield	1.56	1.30	1.05	1.24	0.77	1.23	1.62	0.98
Iron	2.01	2.26	2.25	2.07	1.71	1.60	1.67	2.82
Kane	0.67	0.61	0.75	0.17	0.12	0.16	0.74	1.27
Millard	0.82	0.96	1.35	1.65	1.35	2.50	1.62	1.88
Piute	3.28	1.16	1.20	1.89	2.16	0.86	2.22	1.68
Sevier	4.47	4.24	6.30	12.48	9.52	7.21	6.44	8.92
Washington	0.00	0.48	0.30	0.35	0.32	0.08	0.23	0.25
Wayne	0.89	0.75	0.75	0.59	0.38	0.86	0.97	0.90
REGIONAL TOTALS	15.20	14.45	15.00	22.36	16.88	15.36	17.08	20.95
Northeastern Region								
Daggett	1.41	1.16	2.10	1.71	1.48	0.98	1.44	1.39
Duchesne	1.79	3.08	3.45	4.02	1.64	1.56	1.67	2.37
Uintah	4.62	4.86	4.35	5.56	4.13	5.82	3.75	4.09
REGIONAL TOTALS	7.82	9.10	9.90	11.30	7.26	8.36	6.85	7.86
Southeastern Region								
Carbon	0.30	2.33	0.45	0.76	0.93	1.23	2.36	0.90
Emery	1.49	2.33	1.80	1.47	1.12	0.61	1.20	0.37
Grand	0.37	1.71	0.75	0.65	0.87	0.29	0.79	0.29
San Juan	0.44	0.68	0.75	0.47	0.19	0.16	0.28	0.90
REGIONAL TOTALS	2.61	7.05	3.75	3.37	3.12	2.29	4.63	2.45
Unknown Counties	0.07	0.00	0.00	1.30	0.32	0.86	0.00	0.00
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

Table 16. Statewide summary of forest grouse harvest statistics, 1963-91.

Year	Total Hunters	Total Harvest: Ruffed	Percent	Blue	Percent	Unknown	Percent	Total	Hunter-Days Afield	Grouse/Hunter-Day: Ruffed	Blue	Total	Grouse/Hunter: 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
Totals (1963-91)	425,366	389,809	--	580,572	--	62,955	--	1,033,336	1,062,291	--	--	--	--	--	--
Averages (1963-90)	14,677	13,491	38.92	19,974	54.81	2,194	6.26	35,659	36,421	0.39	0.53	0.97	0.89	1.27	2.30

Table 17. Blue and ruffed grouse harvest statistics and hunt regulations, 1963-1991.

Year	Total Ruffed Grouse Harvest	Total Blue Grouse Harvest	Total Forest Grouse Harvest	Total Hunters Afield	Total Hunter Days Afield	Season Length			Aggregate Bag Limits	
						Open	Close	Days	Daily	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

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

** From 1950 to 1963 a grouse stamp was requried to hunt any grouse.

In 1964, the entire state was opened to hunting without a stamp.

Table 18. Forest grouse field bag check summary, 1991.

Region and County	ALL HUNTS					COMPLETE 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	22	56	69	39	57	--	69	335	99	30	1.43
Cache	11	50	28	16	57	--	191	--	44	--	0.23
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	131	--	42	--	0.32
REGIONAL TOTALS	33	106	97	55	57	--	391	335	185	55	0.47
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	27	75	6	8	0.22
Utah	--	--	--	--	--	--	91	332	37	11	0.41
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	118	407	43	11	0.36
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region											
Daggett	3	9	46	20	43	3	9	46	20	43	2.22
Duchesne	2	6	24	2	8	--	--	--	--	--	--
Uintah	3	3	9	10	111	3	3	9	10	111	3.33
REGIONAL TOTALS	8	18	79	20	25	6	12	55	30	55	2.50
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	41	124	176	75	43	6	521	797	258	32	0.50

Table 19. Forest grouse hunter success trend as determined by field bag checks, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	35	1.42	39	3.50	50	2.83	42	2.60	300	2.00	30	1.43
Cache	15	0.57	17	0.74	28	1.15	8	0.63	--	--	--	0.23
Davis	--	0.00	16	0.56	16	0.50	40	0.50	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	6	0.20	10	0.44	14	0.52	7	0.32	--	--	--	--
Summit	200	2.00	--	--	--	--	--	--	--	--	--	--
Weber	10	0.38	29	0.93	20	0.56	19	0.53	33	1.33	--	0.32
REGIONAL TOTALS	14	0.50	16	0.71	23	0.88	14	0.62	57	1.60	55	0.47
Central Region												
Juab	--	--	--	--	108	3.25	56	2.30	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	33	0.86	--	--	--	--
Tooele	--	--	13	0.51	133	3.00	29	2.00	47	1.60	8	0.22
Utah	10	0.39	--	--	20	0.86	39	1.90	31	0.97	11	0.41
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	10	0.39	13	0.51	26	1.07	33	1.41	33	1.04	11	0.36
Southern Region												
Beaver											--	--
Garfield	25	1.00	--	--	--	--	550	2.75	--	--	--	--
Iron	--	--	--	--	200	3.75	--	2.25	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--
Millard	16	0.60	82	2.00	150	3.00	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	500	4.00	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	17	0.63	82	2.00	190	3.64	1,000	2.50	--	--	--	--
Northeastern Region												
Daggett	--	--	46	1.20	38	1.50	32	0.85	9	0.60	43	2.22
Duchesne	16	0.55	33	1.00	--	--	--	--	--	--	--	--
Uintah	12	0.43	53	1.46	24	0.47	7	0.32	60	1.95	111	3.33
REGIONAL TOTALS	13	0.45	50	1.37	26	0.52	9	0.40	30	1.34	55	2.50
Southeastern Region												
Carbon	--	--	--	--	--	--	32	1.20	--	--	--	--
Emery	333	2.50	--	--	--	--	--	--	--	--	--	--
Grand	50	0.50	--	--	--	--	--	--	--	--	--	--
San Juan	33	1.00	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	54	1.40	--	--	--	--	32	1.20	--	--	--	--
STATE TOTALS	14	0.50	18	0.75	25	0.94	16	0.68	33	1.14	32	0.50

Table 20. Sex and age composition of harvested blue grouse, 1991.

Region and County	Sample Size	Adults M	Adults F	Adults Total	Young M	Young F	Young Total	Young/ 100 Adults	Young/ 100 Hens
Northern Region									
Box Elder	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS**	95	--	--	--	--	--	--	91	176
Central Region									
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--
Tooele	5	0	3	3	1	1	2	67	67
Utah	58	11	17	28	12	18	30	107	176
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	63	11	20	31	13	19	32	103	160
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	158	11	20	31	13	19	32	103	160

** Includes portions of Box Elder, Cache, Rich and Weber Counties.

Table 21. Sex and age composition of harvested ruffed grouse, 1991.

Region and County	Sample Size	Adults M	Adults F	Adults Total	Young M	Young F	Young Total	Young/ 100 Adults	Young/ 100 Hens
Northern Region									
Box Elder	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS**	25	--	--	--	--	--	--	257	--
Central Region									
Juab	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--
Utah	5	--	--	2	--	--	3	150	--
Wasatch	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	5	--	--	2	--	--	3	150	--
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	30	--	--	2	--	--	3	150	--

** Includes portions of Box Elder, Cache, Rich and Weber Counties.

QUAIL

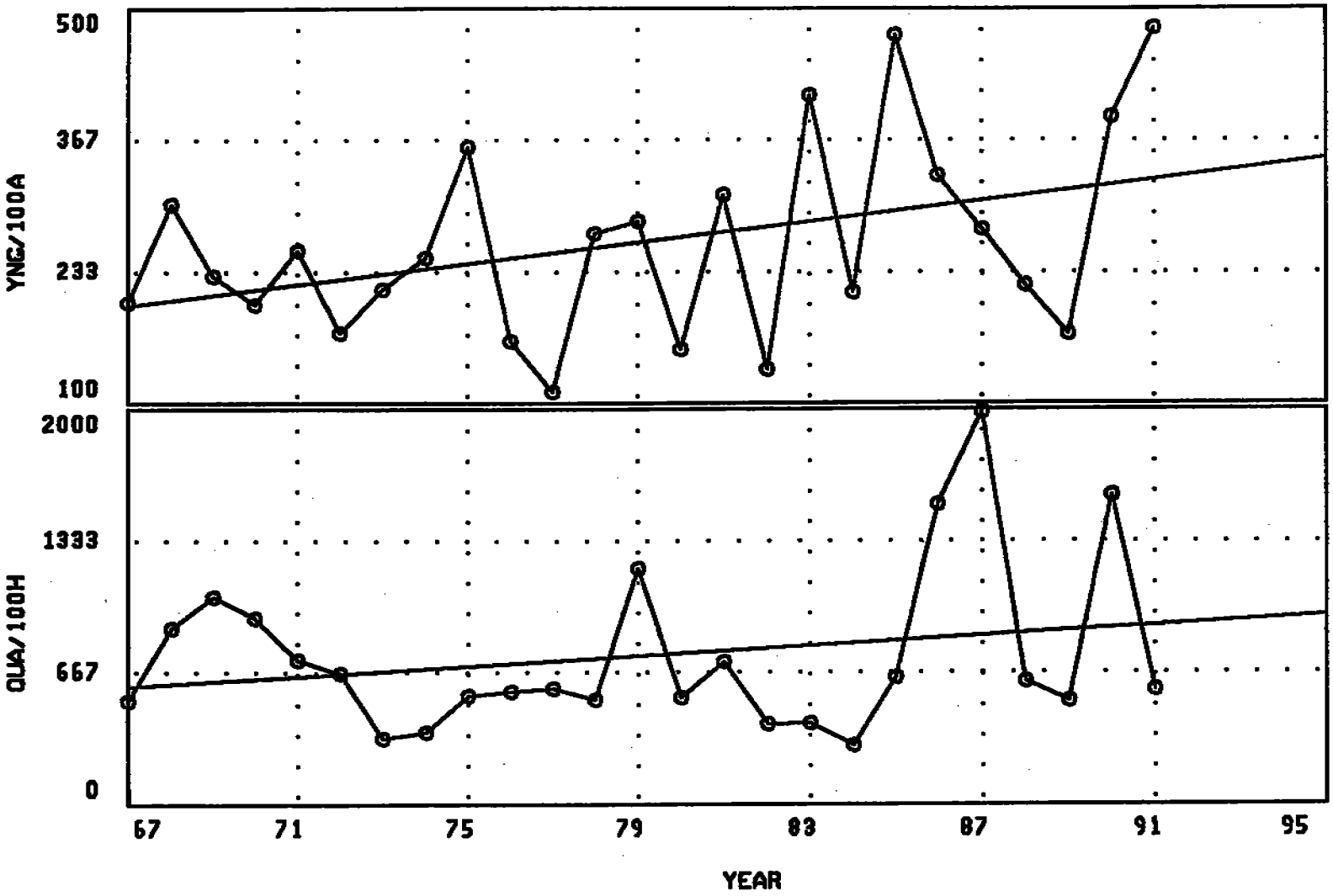
SUMMARY

Production of Gambel's quail increased from 1990, and was above average. Production statewide increased in 1991 and was above average.

Statewide harvest statistics, when compared to 1990, showed an increase in total hunters and a decline in total harvest. Hunter success (birds per hunter-day) increased 10 percent and remained below average statewide. Hunter days afield decreased 14 percent from 1990. Total harvest of Gambel's quail reported in Washington County increased significantly.

There has been a long-term decline in hunter success and total harvest in Washington County; however, there has been an increase in production trend indices. Given the extensive urban development in the St. George-Hurricane areas since 1962, the decline in total harvest and hunter success is only partly attributable to habitat loss. There are areas that sustain quail populations that cannot be hunted because of urban expansion (i.e. Bloomington, Bloomington East, Santa Clara River below Santa Clara, north of St. George). These were popular hunting areas in the early 1960's (D. Nish personal communication).

FIGURE1. QUAIL PRODUCTION INDICES, 1967-91.



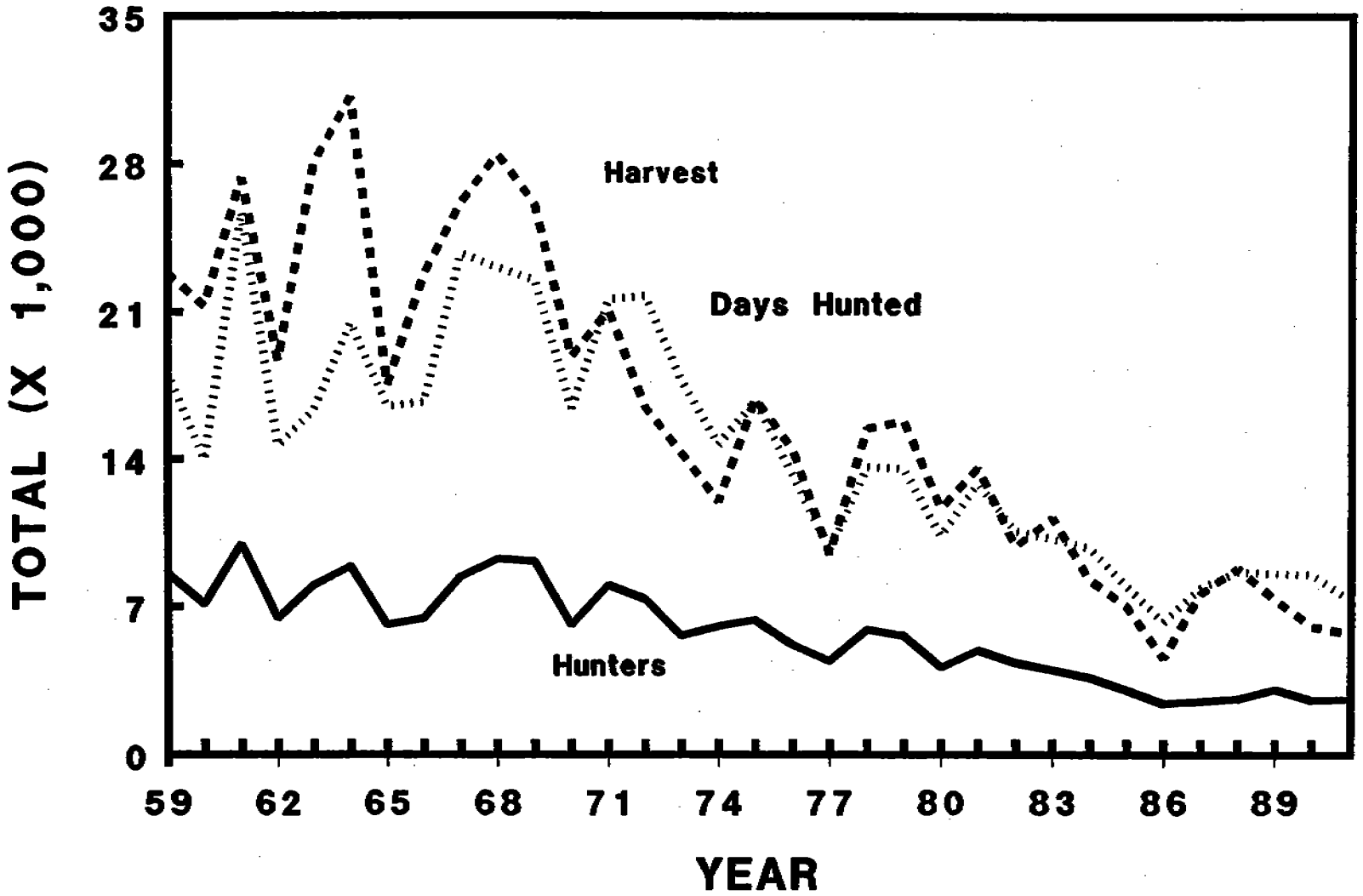


Figure 2. Statewide trends of quail harvest statistics, 1959-91.

Brood Counts

Results of the annual random brood counts for 1991 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 1991 compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Average
Total quail observed	29	-83	-92
Young per 100 adults	480	+23	+64
Mean brood size	9.00	-14	+23
Quail observed per 100 hours	580	-63	-33
Total hours effort	5	-55	-91

Harvest statistics for 1990 indicated a decreased breeding population of quail statewide. In Washington County hunter success rates increased slightly from the previous year.

Brood count effort decreased in 1991 due to Division specialization of conservation officer and biologist duties and no staffing of additional biologists under Phase I of reorganization. Only 29 quail were observed in 1991 which was 92 percent below average. Total hours of effort on brood counts was 5 which is 91 percent below average for the last 10 years. The production index of young per 100 adults for Gambel's quail was 62 percent higher than what it was the previous year. Production statewide increased from 1990 and was above average.

Temperatures and precipitation were below average in the Dixie climatic subdivision April through July. The winter was mild. The drought continued.

Harvest

Results of the annual hunter questionnaire for 1991 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 1991 season to 1990 and the previous 32-year average follow:

	1991	Percent change from 1990	Average
Quail hunters	2,644	+1	-52
Quail harvested	5,775	-5	-62
Hunter-days afield	7,393	-14	-47
Quail per hunter-day	0.78	+10	-25
Quail per hunter	2.18	-6	-17

Harvest for 1991 decreased 5 percent from 1990 and was 62 percent below average.

In Washington County (Gambel's quail), hunter success increased 40 percent and hunter days afield increased 33 percent from 1990. Total harvest increased 87 percent. Thirty-five percent of the statewide harvest of quail was taken in Washington County during 1991 compared to 18 percent in 1990, 32 percent in 1989, 28 percent in 1988, 43 percent in 1987, 29 percent in 1986 and 36 percent in 1985.

Long-term quail harvest statistics are shown in Figures 2 and 3.

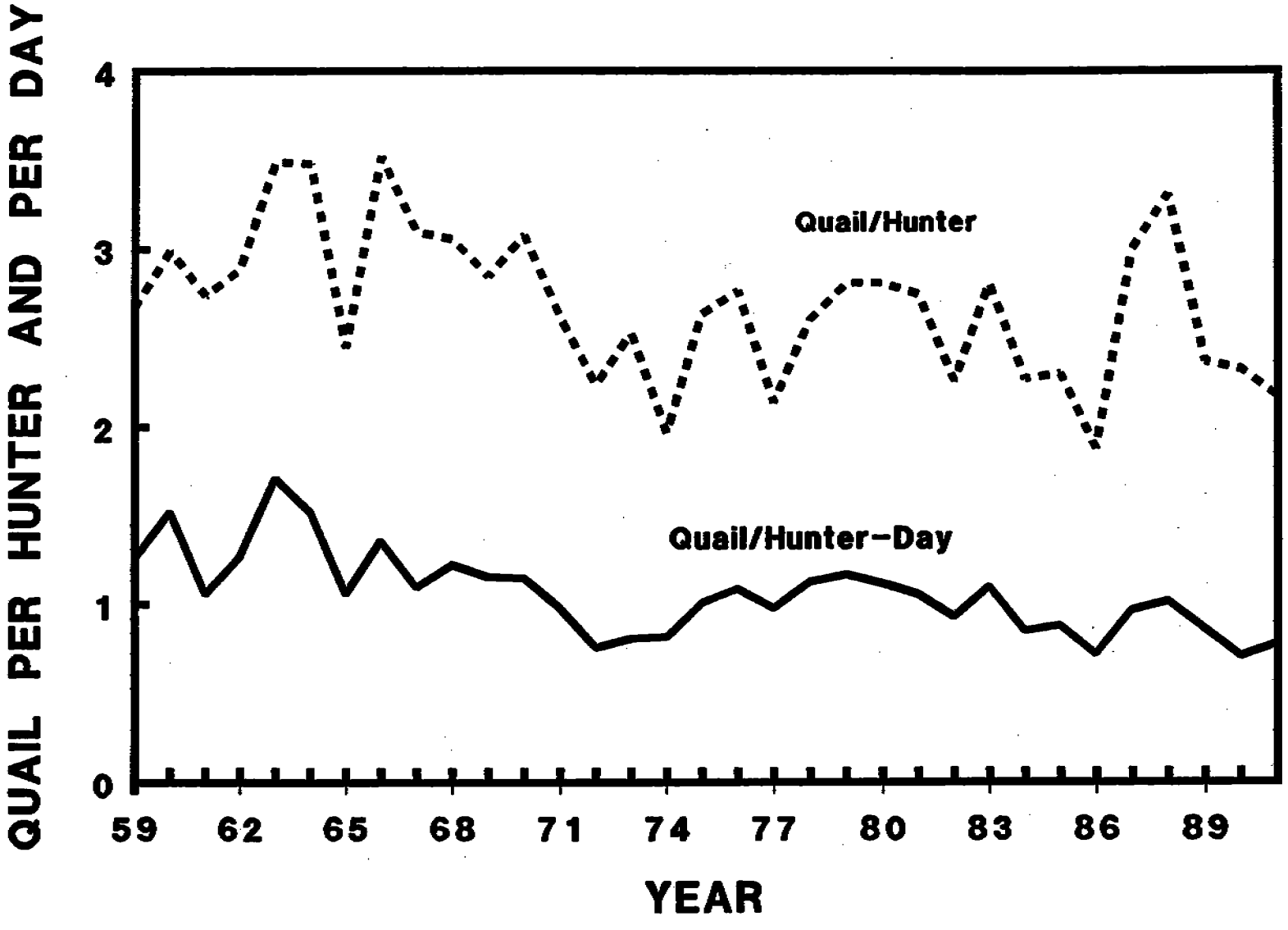


Figure 3. Statewide trends of quail hunter success rates, 1959-91.

Table 1. Quail summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Cache	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Davis	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Morgan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Rich	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Summit	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Weber	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Central Region																
Juab	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sanpete	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Tooele	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Utah	1	1	9	9.00	–	–	–	1	9	900	–	1	–	–	1	1,000
Wasatch	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	1	1	9	9.00	–	–	–	1	9	900	–	1	–	–	1	1,000
Southern Region																
Beaver	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Garfield	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Iron	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Kane	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Millard	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Piute	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Sevier	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Washington	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Wayne	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Northeastern Region																
Daggett	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Duchesne	–	–	–	–	4	15	–	4	15	375	59	4	–	–	4	475
Uintah	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	4	15	–	4	15	375	59	4	–	–	4	475
Southeastern Region																
Carbon	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Emery	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
Grand	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
San Juan	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
STATE TOTALS	1	1	9	9.00	4	15	–	5	24	480	59	5	–	–	5	580

Table 2. Trend of quail young per 100 adults, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	440	–	–	–	–	–	–	–	–	–	–	
Cache	–	–	–	–	–	–	–	–	–	–	–	
Davis	35	–	–	–	–	–	–	–	–	–	–	
Morgan	–	–	550	–	1,050	–	–	–	–	–	–	
Rich	–	–	–	–	–	–	–	–	–	–	–	
Summit	–	–	–	–	–	–	–	–	–	–	–	
Weber	–	–	125	125	–	–	1,400	–	–	–	–	
REGIONAL TOTALS	128	–	130	125	1,050	–	1,400	224	–	656	–	530
Central Region												
Juab	–	–	–	–	–	–	–	–	–	–	–	
Salt Lake	67	40	40	–	–	–	–	–	–	–	–	
Sanpete	–	–	–	–	–	–	–	–	–	–	–	
Tooele	–	–	–	–	–	–	–	–	–	–	–	
Utah	100	–	–	–	700	700	220	–	–	–	900	
Wasatch	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	72	40	40	–	700	700	220	–	–	–	900	295
Southern Region												
Beaver	–	–	–	–	–	–	–	–	–	–	–	
Garfield	–	–	–	–	–	–	–	–	–	–	–	
Iron	–	–	–	–	–	–	–	–	–	–	–	
Kane*	–	–	–	–	–	–	–	–	–	–	–	
Millard	540	300	133	133	138	44	545	790		179	–	
Piute	–	–	–	–	–	–	–	–	–	–	–	
Sevier	–	250	–	–	–	–	–	–	–	–	–	
Washington*	226	152	624	224	571	412	250	126	194	367	–	
Wayne*	550	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	439	162	544	213	434	456	272	242	194	252	–	321
Northeastern Region												
Daggett	–	–	–	–	–	–	–	–	–	–	–	
Duchesne	583	600	–	–	–	–	–	300	–	–	375	
Uintah	305	411	–	–	–	–	–	126	420	667	–	
REGIONAL TOTALS	367	286	–	–	–	–	–	177	420	667	375	383
Southeastern Region												
Carbon	–	–	–	–	–	–	–	–	–	–	–	
Emery	–	–	–	–	–	–	–	–	–	–	–	
Grand	300	–	–	–	–	–	–	–	–	–	–	
San Juan	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	300	–	–	–	–	–	–	–	–	–	–	300
STATE TOTALS	155	311	134	412	213	473	331	276	220	391	480	292

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

Table 3. Trend of average brood size for quail, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	11.00	–	–	–	–	–	–	–	–	–	–	
Cache	–	–	–	–	–	–	–	–	–	–	–	
Davis	1.33	–	–	–	–	–	–	6.33	–	11.80	–	
Morgan	–	–	11.00	–	10.50	–	–	–	–	–	–	
Rich	–	–	–	–	–	–	–	–	–	–	–	
Summit	–	–	–	–	–	–	–	–	–	–	–	
Weber	–	–	–	3.75	–	–	–	14.00	–	–	–	
REGIONAL TOTALS	6.85	–	5.20	–	10.50	–	14.00	5.33	–	11.80	–	8.95
Central Region												
Juab	–	–	–	–	–	–	–	–	–	–	–	
Salt Lake	–	–	3.00	–	–	–	–	–	–	–	–	
Sanpete	–	–	–	–	–	–	–	–	–	–	–	
Tooele	–	–	–	–	–	–	–	–	–	–	–	
Utah	3.00	–	–	–	7.00	7.50	11.00	–	–	–	9.00	
Wasatch	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	3.00	–	3.00	–	7.00	7.50	11.00	–	–	–	9.00	6.30
Southern Region												
Beaver	–	–	–	–	–	–	–	–	–	–	–	
Garfield	–	–	–	–	–	–	–	–	–	–	–	
Iron	–	–	–	–	–	–	–	–	–	–	–	
Kane*	–	–	–	–	–	–	–	–	–	–	–	
Millard	8.54	–	3.00	4.00	9.00	1.80	12.00	11.28	–	12.50	–	
Piute	–	–	–	–	–	–	–	–	–	–	–	
Sevier	–	–	–	–	–	–	–	–	–	–	–	
Washington*	6.42	6.00	13.50	5.09	8.43	7.85	5.59	4.64	–	11.00	–	
Wayne*	5.50	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	7.97	6.00	11.17	5.06	8.56	6.64	6.16	7.22	–	11.00	–	7.75
Northeastern Region												
Daggett	–	–	–	–	–	–	–	–	–	–	–	
Duchesne	9.00	–	–	–	–	–	–	9.00	–	–	–	
Uintah	12.80	6.17	–	–	–	–	–	8.50	4.50	6.70	–	
REGIONAL TOTALS	11.71	6.17	–	–	–	–	–	8.15	4.50	6.70	–	7.45
Southeastern Region												
Carbon	–	–	–	–	–	–	–	–	–	–	–	
Emery	–	–	–	–	–	–	–	–	–	–	–	
Grand	4.50	–	–	–	–	–	–	–	–	–	–	
San Juan	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	4.50	–	–	–	–	–	–	–	–	–	–	4.50
STATE TOTALS	8.09	6.05	9.71	5.06	8.62	6.70	6.62	7.25	4.50	10.45	9.00	7.31

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

Table 4. Trend of quail observed per 100 hours, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Averag 1981-9
Northern Region												
Box Elder	1,800	–	–	–	–	–	–	–	–	–	–	
Cache	–	–	–	–	–	–	–	–	–	–	–	
Davis	525	–	–	–	–	–	–	1,100	–	–	–	
Morgan	–	–	222	–	–	–	–	–	–	–	–	
Rich	–	–	–	–	–	–	–	–	–	–	–	
Summit	–	–	–	–	–	–	–	–	–	–	–	
Weber	–	–	825	–	–	–	1,500	–	–	–	–	
REGIONAL TOTALS	891	–	511	–	–	–	1,500	1,100	–	–	–	800
Central Region												
Juab	–	–	–	–	–	–	–	–	–	–	–	
Salt Lake	63	527	1,400	–	–	–	–	–	–	–	–	
Sanpete	–	–	–	–	–	–	–	–	–	–	–	
Tooele	–	–	–	–	–	–	–	–	–	–	–	
Utah	75	–	–	–	320	2,000	1,600	–	–	–	1,000	
Wasatch	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	258	414	247	–	320	2,000	1,600	–	–	–	1,000	807
Southern Region												
Beaver	–	–	–	–	–	–	–	–	–	–	–	
Garfield	–	–	–	–	–	–	–	–	–	–	–	
Iron	–	–	–	–	–	–	–	–	–	–	–	
Kane*	–	–	–	–	–	–	–	–	–	–	–	
Millard	3,911	800	350	177	344	867	1,303	1,271	–	975	–	
Piute	–	–	–	–	–	–	–	–	–	–	–	
Sevier	–	1,400	–	–	–	–	–	–	–	–	–	
Washington*	275	771	605	380	783	1,604	2,029	530	53	1,050	–	
Wayne*	–	650	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	1,053	691	580	357	663	1,484	1,958	527	53	1,013	–	838
Northeastern Region												
Daggett	–	–	–	–	–	–	–	–	–	–	–	
Duchesne	205	27	42	–	–	–	–	356	–	–	475	
Uintah	708	328	100	–	–	–	–	1,800	371	767	–	
REGIONAL TOTALS	406	123	58	–	–	–	–	717	371	767	475	407
Southeastern Region												
Carbon	–	–	–	–	–	–	–	–	–	–	–	
Emery	–	–	–	–	–	–	–	–	–	–	–	
Grand	400	–	–	–	–	–	–	–	–	–	–	
San Juan	–	–	–	–	–	–	–	–	–	–	–	
REGIONAL TOTALS	400	–	–	–	–	–	–	–	–	–	–	400
STATE TOTALS	720	408	411	297	645	1,519	1,984	622	524	1,564	580	869

*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, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	8	226	86	0.38	3.06	1.51
CACHE**	3	104	0	0.00	1.41	0.00
DAVIS	4	104	86	0.83	1.41	1.51
MORGAN**	0	0	0	0.00	0.00	0.00
RICH**	0	0	0	0.00	0.00	0.00
SUMMIT**	1	52	0	0.00	0.71	0.00
WEBER	9	226	121	0.54	3.06	2.11
REGIONAL TOTALS	25	713	295	0.41	9.65	5.12
CENTRAL REGION						
JUAB	2	69	504	7.25	0.94	8.74
SALT LAKE	1	104	226	2.17	1.41	3.92
SANPETE**	1	69	0	0.00	0.94	0.00
TOOELE**	3	121	34	0.29	1.65	0.60
UTAH	33	1,635	991	0.61	22.12	17.17
WASATCH**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	40	2,000	1,757	0.88	27.06	30.43
SOUTHERN REGION						
BEAVER	0	0	0	0.00	0.00	0.00
GARFIELD	0	0	0	0.00	0.00	0.00
IRON	0	0	0	0.00	0.00	0.00
KANE	0	0	0	0.00	0.00	0.00
MILLARD	8	626	52	0.08	8.47	0.90
PIUTE	0	0	0	0.00	0.00	0.00
SEVIER	4	86	156	1.80	1.18	2.71
WASHINGTON	42	2,383	2,000	0.84	32.24	34.64
WAYNE	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	54	3,096	2,209	0.71	41.89	38.26
NORTHEASTERN REGION						
DAGGETT	1	17	17	1.00	0.24	0.30
DUCHESNE	9	330	382	0.16	4.47	6.63
UINTAH	19	991	469	0.47	13.41	8.13
REGIONAL TOTALS	29	1,339	869	0.65	18.12	15.06
SOUTHEASTERN REGION						
CARBON	2	69	313	4.50	0.94	5.42
EMERY	3	156	330	2.11	2.12	5.72
GRAND	0	0	0	0.00	0.00	0.00
SAN JUAN	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	5	226	643	2.85	3.06	11.15
UNKNOWN	1	17	0	0.00	0.24	0.00
STATE TOTALS	154	7,393	5,775	0.78	100.00	100.00

*Total hunter-trips from questionnaire returns.
**Closed to quail hunting in 1991.

Table 6. Summary of quail bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.21	0.50	0.00	0.23	0.80	0.90	0.71	0.38
Cache	0.00	0.00	1.00	0.43	0.22*	0.20*	0.10*	0.00*
Davis	0.43	0.45	0.44	0.43	0.74	0.67	0.15	0.83
Morgan	0.00	1.00	1.00	2.00	1.00*	0.00*	2.00*	0.00*
Rich	0.00	0.00	0.00	0.00	1.00*	0.00*	0.00*	0.00*
Summit	0.00	0.00	0.40	0.00	0.00*	0.00*	0.00*	0.00*
Weber	0.64	0.71	0.69	0.11	0.35	0.21	0.50*	0.54
REGIONAL TOTALS	0.40	0.54	0.50	0.35	0.60	0.38	0.39	0.41
Central Region								
Juab	0.33	0.00	2.00	0.00	1.38	0.00	0.19	7.25
Salt Lake	0.32	1.88	0.43	0.83	1.18	0.50	0.42	2.17
Sanpete	0.00	1.50	1.00	0.86	0.80*	0.25*	0.00*	0.00*
Tooele	0.22	1.50	0.33	1.00	1.24*	3.25*	0.60*	0.29*
Utah	0.82	0.60	0.72	0.59	0.46	0.84	0.75	0.61
Wasatch	1.25	0.00	0.00	0.50	1.13*	0.00	0.00*	0.00*
REGIONAL TOTALS	0.65	0.85	0.69	0.63	0.80	0.87	0.55	0.88
Southern Region								
Beaver	0.00	1.83	0.00	0.00	5.00	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	5.00	0.00	0.00	0.00
Iron	1.50	0.00	0.00	0.00	0.00	1.67	0.00	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	1.00	0.63	1.55	0.96	0.00	0.90	1.06	0.08
Piute	0.50	0.00	1.00	2.25	0.00	0.00	0.00	0.00
Sevier	0.86	1.80	0.00	0.00	1.50	0.00	0.00	1.80
Washington	1.98	1.23	1.27	2.33	2.30	1.26	0.60	0.84
Wayne	0.00	0.00	0.00	0.00	2.00	0.80	0.00	0.00
REGIONAL TOTALS	1.64	1.21	1.15	1.93	2.08	1.19	0.66	0.71
Northeastern Region								
Daggett	0.00	0.00	0.00	0.50	0.00	0.00	0.00	1.00
Duchesne	0.08	0.70	0.44	1.86	0.89	0.62	0.91	1.16
Uintah	0.72	1.00	0.70	0.52	0.87	0.73	0.98	0.47
REGIONAL TOTALS	0.54	0.86	0.63	0.81	0.88	0.68	0.95	0.65
Southeastern Region								
Carbon	0.00	1.00	0.00	1.00	0.38	5.00	1.11	4.50
Emery	0.00	0.31	1.14	1.06	1.11	0.50	1.86	2.11
Grand	0.00	0.00	0.00	0.50	0.80	0.00	2.00	0.00
San Juan	0.00	0.00	0.00	0.00	0.00	8.00	0.00	0.00
REGIONAL TOTALS	0.00	0.62	0.29	0.85	0.77	2.00	1.68	2.85
Unknown counties	0.00	0.00	0.00	0.00	2.00	0.00	0.00	0.00
STATE TOTALS	0.85	0.88	0.72	0.97	1.02	0.86	0.71	0.78

*Closed Season

Table 7. Percentage distribution of quail harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.98	0.30	0.00	0.96	1.50	2.53	4.05	1.51
Cache	0.00	0.00	0.44	1.92	0.37*	0.28*	0.34*	0.00*
Davis	6.11	5.16	3.59	1.92	6.98	1.69	1.35	1.51
Morgan	6.11	0.60	0.90	0.64	0.18*	0.00*	0.68*	0.00*
Rich	0.00	0.00	0.00	0.00	0.18*	0.00*	0.00*	0.00*
Summit	0.00	0.00	0.90	0.00	0.00*	0.00*	0.00*	0.00*
Weber	2.19	6.07	4.94	0.32	1.32	1.97	5.41	2.11
REGIONAL TOTALS	9.29	12.15	10.80	5.76	10.56	6.46	11.83	5.12
Central Region								
Juab	0.48	0.00	0.90	0.00	4.15	0.00	1.69	8.74
Salt Lake	1.46	9.11	2.69	1.60	3.77	0.84	2.70	3.92
Sanpete	0.00	0.91	0.44	3.84	0.75*	0.56*	0.00*	0.00*
Tooele	0.98	0.91	0.90	0.64	6.79*	3.65*	1.01*	0.60*
Utah	18.33	12.45	34.24	18.58	9.43	21.35	16.89	17.17
Wasatch	1.22	0.00	0.00	0.64	5.09*	0.00*	0.00*	0.00
REGIONAL TOTALS	22.49	23.40	3.18	25.32	30.00	26.41	22.30	30.43
Southern Region								
Beaver	0.00	3.33	0.00	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	2.83	0.00	0.00	0.00
Iron	0.72	0.00	0.00	0.00	1.88	1.40	0.00	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	7.82	1.52	7.65	7.69	0.00	5.34	5.74	0.90
Piute	0.48	0.00	0.44	2.88	0.00	0.00	0.00	0.00
Sevier	1.46	2.72	0.00	0.00	0.56	0.00	0.00	2.71
Washington	46.45	35.56	29.27	42.62	27.73	32.30	17.57	34.64
Wayne	0.00	0.00	0.00	0.00	0.75	1.12	0.00	0.00
REGIONAL TOTALS	56.97	43.16	37.39	53.20	33.77	40.17	23.31	38.26
Northeastern Region								
Daggett	0.00	0.00	0.00	0.32	0.00	0.00	0.00	0.30
Duchesne	0.48	5.77	1.79	4.16	6.41	9.55	7.10	6.63
Uintah	10.76	9.11	7.19	3.84	11.32	2.92	13.85	8.13
REGIONAL TOTALS	11.24	14.89	9.00	8.33	17.73	22.47	20.95	15.06
Southeastern Region								
Carbon	0.00	4.85	0.00	0.32	0.56	1.40	3.38	5.42
Emery	0.00	1.52	3.59	5.44	1.88	0.84	17.57	5.72
Grand	0.00	0.00	0.00	1.60	0.75	0.00	0.68	0.00
San Juan	0.00	0.00	0.00	0.00	0.00	2.25	0.00	0.00
REGIONAL TOTALS	0.00	6.38	3.59	7.37	3.20	4.49	21.62	11.15
Unknown counties	0.00	0.00	0.00	0.00	4.71	0.00	0.00	0.00
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, 1984-90.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	3.93	0.53	1.94	4.02	1.92	2.41	4.09	3.06
Cache	0.61	1.06	0.32	4.33	1.73*	1.20*	2.40*	1.41*
Davis	12.00	10.18	5.85	4.33	9.61	2.17	6.25	1.41
Morgan	0.41	0.53	0.65	0.30	0.19*	0.96*	.24*	0.00*
Rich	0.00	0.00	0.00	0.00	0.19*	0.00*	0.00*	0.00*
Summit	0.00	0.00	1.63	0.30	0.57*	0.00*	0.72*	0.71*
Weber	2.90	7.51	5.20	2.78	3.84	7.95	7.69	3.06
REGIONAL TOTALS	19.87	19.83	15.63	16.08	18.07	14.70	21.39	9.65
Central Region								
Juab	1.23	0.26	0.30	0.30	3.07	0.00	6.49	0.94
Salt Lake	3.93	4.28	4.55	1.85	3.26	1.45	4.57	1.41
Sanpete	0.61	0.53	0.32	4.33	0.96*	1.93*	0.24*	0.94*
Tooele	3.72	0.53	1.94	0.61	5.57*	0.96*	1.20	1.65*
Utah	19.04	18.23	34.19	30.65	20.76	21.69	16.11	22.12
Wasatch	0.83	0.53	0.00	1.23	4.61*	0.00*	0.24*	0.00*
REGIONAL TOTALS	29.39	24.39	41.37	38.99	38.26	26.03	28.85	27.06
Southern Region								
Beaver	0.00	1.60	1.63	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	0.57	0.00	0.00	0.00
Iron	0.41	0.80	0.65	0.00	0.38	0.72	0.00	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	6.62	2.14	3.57	7.73	2.50	5.06	3.85	8.47
Piute	0.83	0.00	0.32	1.23	0.00	0.00	0.24	0.00
Sevier	1.45	1.34	0.65	0.00	0.38	0.00	0.00	1.18
Washington	19.87	25.47	16.60	17.64	12.30	21.93	20.91	34.24
Wayne	0.20	0.00	0.00	0.00	0.38	1.20	0.00	0.00
REGIONAL TOTALS	29.39	31.36	23.44	26.62	16.52	28.92	25.00	41.89
Northeastern Region								
Daggett	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.24
Duchesne	4.97	7.23	2.92	2.16	7.30	13.25	5.53	4.47
Uintah	12.63	8.03	7.48	7.12	13.26	15.18	10.10	13.41
REGIONAL TOTALS	17.59	15.27	10.42	9.90	20.57	28.44	15.63	18.12
Southeastern Region								
Carbon	2.90	4.28	6.83	0.30	1.53	0.24	2.16	0.94
Emery	0.61	4.28	2.28	4.95	1.73	1.45	6.73	2.12
Grand	0.20	0.26	0.00	3.09	0.96	0.00	0.24	0.00
San Juan	0.00	0.26	0.00	0.00	0.00	0.24	0.00	0.00
REGIONAL TOTALS	3.72	9.11	9.11	8.34	4.22	1.93	9.13	3.06
Unknown counties	0.00	0.00	0.00	0.00	2.30	0.00	0.00	0.24
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, 1951-91.

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
Totals (1951-91)	202,896	553,297	506,470	–	–
Averages (1951-90)	5,563	15,209	13,863	1.05	2.62

Table 10. Gambel's quail long period waterhole count trend on the west slope of the Beaver Dam Mountains, Washington County, 1975-91. These counts have been conducted since 1962.

	Year																	Average
Index	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1975-90
Total Young	145	61	–	67	253	72	37	85	114	166	47	163	348	59	35	33	208	112
Total Adults	20	53	–	29	77	52	25	33	14	86	11	48	139	47	18	9	35	44
Total Quail	165	114	17	86	330	124	62	118	128	252	58	211	487	106	53	42	243	147
Young per 100 Adults	725	115	–	353	329	138	148	258	814	193	427	340	250	126	194	367	594	318

HUNGARIAN PARTRIDGE

SUMMARY

Harvest data for 1990 indicated above average breeding populations for 1991. Limited brood data was collected in Box Elder County and indicated an increase in Hun production.

The 1991 hunt data indicated increased hunting pressure on Huns when compared to 1990. The number of Huns harvested increased 9 percent in 1991. Hunters afield increased 15 percent. Total hunters, days afield and harvest were still 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. The decline in production and harvest in 1989 was possibly due to the hot, dry summer.

Brood Counts

Results of the annual random brood counts for 1991 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 1991 compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Percent change from Average
Total Huns observed	134	-14	+54
Young per 100 adults	793	+98	+78
Mean brood size	12.50	+40	+24
Huns observed per 100 hours	327	-37	+239
Total hours effort	41	+37	-58

Harvest data for 1990 indicated an above average breeding population for 1991. Hungarian partridge should have overwintered well since December through February were dryer than normal but temperatures in the Western and North Central climatic subdivisions were below normal in December and January. It was a relatively mild winter for partridge. However, this is the sixth year of drought. Young per 100 adults increased 98 percent from the previous year and was 78 percent above average.

Harvest

Hunter Questionnaire

Results of the annual hunter questionnaire for 1991 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 1991 season compared to 1990 and the previous 32-year average follow:

	1991	Percent change from 1990	Percent change from Average
Hungarian partridge hunters	2,662	+15	-26
Hungarian partridge harvest	7,376	+9	-4
Hunter-days afield	8,367	+20	-6
Huns per hunter-day	0.88	-9	+8
Huns per hunter	2.77	-6	+36

Hungarian partridge hunters and hunting pressure increased. Success decreased 9 percent from 1990. Harvest was 4 percent below the 32-year average.

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

Field Bag Checks

Results of the survey for 1991 are shown in Table 10. Hunter success trends determined via this method are shown in Table 11. Indices obtained for 1991 compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Average
Total hunters checked	11	-27	-92
Total hours hunted	11	-76	-99
Huns per hunter (complete hunts)	0.55	--	-72
Huns bagged per 100 hours	55	--	+38
Average hours per hunter-day (complete hunts)	1	-67	-78
Hours hunted per Hun bagged (complete hunts)	1.83	--	-85

Field bag check data submitted in 1991 was for Box Elder and Cache counties only. Many of these hunters are hunting sagegrouse, but Huns are often found in the same areas. Sample sizes were too small to derive meaningful conclusions.

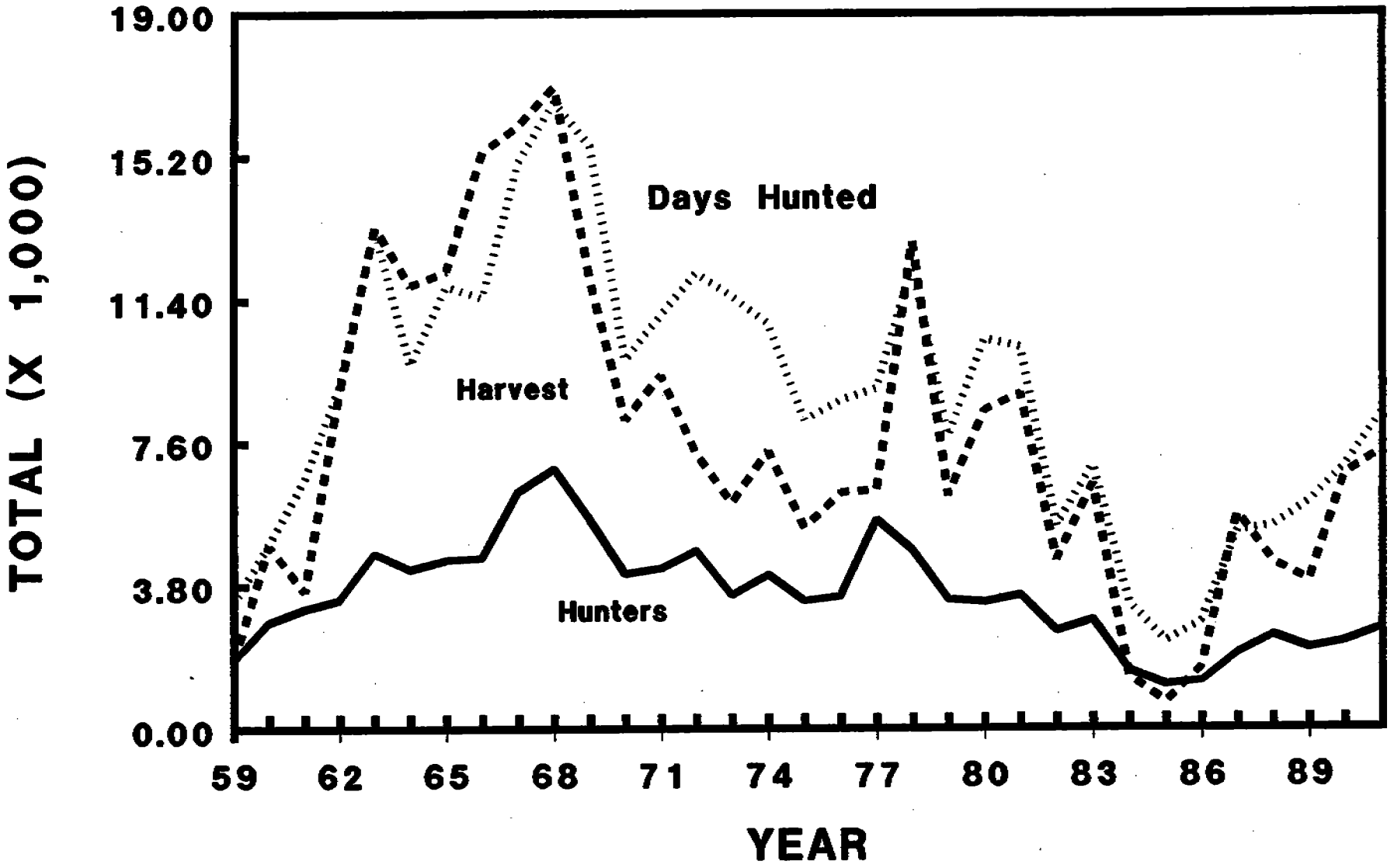


Figure 1. Statewide trends of Hungarian partridge harvest statistics, 1959-91.

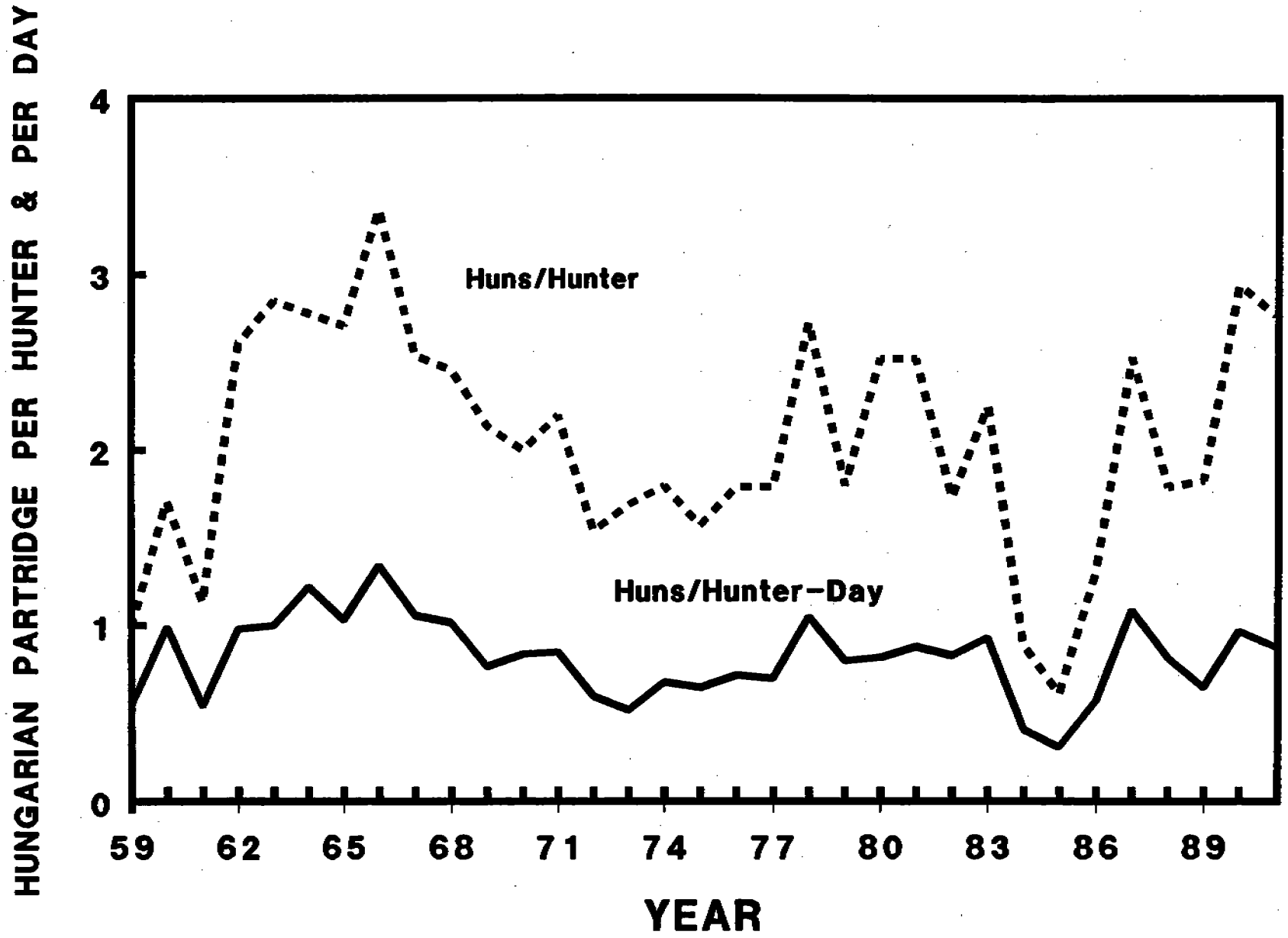


Figure 2. Statewide trends of Hungarian partridge hunter success rates, 1959-91.

Table 1. Hungarian partridge summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	8	8	100	12.50	3	19	4	15	119	793	--	14	25	2	41	327
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	8	8	100	12.50	3	19	4	15	119	793	--	14	25	2	41	327
Central Region																
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Southern Region																
Beaver																
Garfield																
Iron																
Kane							NOT APPLICABLE									
Millard																
Piute																
Sevier																
Washington																
Wayne																
REGIONAL TOTALS																
Northeastern Region																
Daggett																
Duchesne							NOT APPLICABLE									
Uintah																
REGIONAL TOTALS																
Southeastern Region																
Carbon																
Emery							NOT APPLICABLE									
Grand																
San Juan																
REGIONAL TOTALS																
STATE TOTALS	8	8	100	12.50	3	19	4	15	119	793	--	14	25	2	41	327

Table 2. Trend of Hungarian partridge young per 100 adults, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1980-90
Northern Region												
Box Elder	671	409	400	--	--	450	569	307	--	396	793	
Cache	--	--	--	--	--	--	--	400	--	433	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	700	300	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	600	409	400	--	--	450	569	324	425	400	793	447
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	
Utah	0	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	400	--	400	--	--	--	
REGIONAL TOTALS	0	--	--	--	--	400	--	400	--	--	--	267
Southern Region												
Beaver												
Garfield												
Iron												
Kane				NOT APPLICABLE								
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne				NOT APPLICABLE								
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery				NOT APPLICABLE								
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	600	409	400	--	--	440	569	328	425	400	793	446

Table 3. Trend of average brood size for Hungarian partridge, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	12.00	11.25	10.67	--	--	18.00	11.88	8.60	8.50	8.25	12.50	
Cache	--	--	--	--	--	--	--	--	--	6.00	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	6.00	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	10.80	11.25	10.67	--	--	18.00	11.88	8.60	8.50	8.90	12.50	11.08
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	4.00	--	4.00	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	4.00	--	4.00	--	--	--	4.00
Southern Region												
Beaver												
Garfield												
Iron												
Kane				NOT APPLICABLE								
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne				NOT APPLICABLE								
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery				NOT APPLICABLE								
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	10.80	11.25	10.67	--	--	11.00	11.88	7.83	8.50	8.90	12.50	10.10

Table 4. Trend of Hungarian partridge observed per 100 hours, 1981-91.

Region and County	Year											Average
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1981-90
Northern Region												
Box Elder	570	144	67	--	0	96	561	438	--	529	327	
Cache	--	--	--	--	--	--	--	--	88	538	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	--	--	--	--	--	--	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	639	144	67	--	0	50	435	240	88	517	327	242
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	--	--	--	--	--	--	--	--	--	--	--	
Tooele	--	--	--	--	--	--	--	--	--	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	500	--	500	--	--	--	
REGIONAL TOTALS	--	--	--	--	--	500	--	500	--	--	--	500
Southern Region												
Beaver												
Garfield												
Iron												
Kane				NOT APPLICABLE								
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne				NOT APPLICABLE								
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery				NOT APPLICABLE								
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	565	144	67	--	0	60	435	248	88	517	327	255

Table 5. Summary of Hungarian partridge hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE**	HUNTER-DAYS AFIELD	BIRDS BAGGED	BIRDS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	100	5,358	5,445	1.02	64.04	73.82
CACHE	34	1,443	1,235	0.86	17.26	16.75
DAVIS	1	34	0	0.00	0.42	0.00
MORGAN	2	34	0	0.00	0.42	0.00
RICH	10	347	469	1.35	4.16	6.37
SUMMIT	0	0	0	0.00	0.00	0.00
WEBER	5	260	104	0.40	3.12	1.42
REGIONAL TOTALS	152	7,480	7,254	0.97	89.40	98.35
CENTRAL REGION						
JUAB**	0	0	0	0.00	0.00	0.00
SALT LAKE**	0	0	0	0.00	0.00	0.00
SANPETE**	0	0	0	0.00	0.00	0.00
TOOELE	4	765	17	0.02	9.15	0.24
UTAH**	1	17	0	0.00	0.21	0.00
WASATCH**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	5	782	17	0.02	9.36	0.24
SOUTHERN REGION						
BEAVER**	1	17	0	0.00	0.21	0.00
GARFIELD**	0	0	0	0.00	0.00	0.00
IRON**	0	0	0	0.00	0.00	0.00
KANE**	0	0	0	0.00	0.00	0.00
MILLARD**	0	0	0	0.00	0.00	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	1	17	0	0.00	0.21	0.00
NORTHEASTERN REGION						
DAGGETT**	2	69	86	1.25	0.83	1.18
DUCHESNE**	1	17	17	1.00	0.21	0.24
UINTAH**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	3	86	104	1.20	1.04	1.42
SOUTHEASTERN REGION						
CARBON**	0	0	0	0.00	0.00	0.00
EMERY**	0	0	0	0.00	0.00	0.00
GRAND**	0	0	0	0.00	0.00	0.00
SAN JUAN**	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	0	0	0	0.00	0.00	0.00
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	161	8,367	7,376	0.88	100.00	100.00

* Total hunter-trips from questionnaire returns.
** Closed to Hungarian partridge hunting in 1991.

Table 6. Summary of Hungarian partridge bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.44	0.25	0.60	1.28	0.95	0.62	1.11	1.02
Cache	0.15	2.00	0.00	1.05	0.50	0.94	0.86	0.86
Davis	0.00	0.00	0.00	0.00	0.00	2.67	0.00	0.00
Morgan	0.00	0.00	0.00	0.67	0.00	1.33	0.00	0.00
Rich	0.00	0.00	0.00	1.50	0.00	0.00	2.13	1.35
Summit	0.00	0.00	0.00	2.00	3.00	0.00	0.00	0.00
Weber	1.00	0.00	0.00	1.25	1.17	1.00	1.00	0.40
REGIONAL TOTALS	0.41	0.26	0.59	1.23	0.89	0.67	1.02	0.97
Central Region								
Juab	0.00	0.00	0.00	0.30	0.00*	0.00*	0.00*	0.00*
Salt Lake	0.50	0.50	0.00	0.00	0.09*	0.67*	0.00*	0.00*
Sanpete	0.00	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*
Tooele	0.00	0.46	0.00	0.00	0.33	0.47	0.46	0.02
Utah	2.00	0.00	0.00	0.33	0.31*	0.00*	0.00*	0.00*
Wasatch	1.00	1.50	0.00	0.00	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.55	0.48	0.00	0.20	0.24	0.41	0.40	0.02
Southern Region								
Beaver	0.00	0.00	0.00	0.00	0.00	0.00*	0.00*	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	0.00	0.00	2.00	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	0.00	0.00	0.20	2.00	0.00*	0.00*	3.00*	0.00*
Washington	0.00	0.00	0.00	0.00	2.14*	0.00*	0.00*	0.00*
Wasatch	1.00	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	0.55	0.00	0.78	1.33	2.14	0.00	0.60	0.00
Northeastern Region								
Daggett	0.00	1.00	0.00	0.00	0.00*	0.00*	0.00*	1.25*
Duchesne	0.00	0.00	0.00	0.00	0.00	0.00*	0.00*	1.00*
Uintah	0.00	0.00	0.00	0.00	0.00	1.00*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.00	0.50	0.00	0.00	0.00	0.00	1.20
Southeastern Region								
Carbon	0.00	0.00	0.00	0.00	0.00	0.00*	0.00*	0.00*
Emery	0.00	0.00	0.00	0.00	1.00*	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	0.00	0.00*	1.50*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.00	0.00	0.00	1.00	1.50	0.00	0.00
Unknown Counties	0.00	0.00	0.00	0.30	0.00	0.00	0.00	0.00
STATE TOTALS	0.41	0.31	0.57	1.09	0.82	0.65	0.97	0.88

*Closed Season

Table 7. Percentage distribution of Hungarian partridge harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	79.04	60.34	91.14	80.25	78.86	76.20	60.80	73.82
Cache	2.94	5.94	0.00	9.87	6.03	8.47	31.01	16.75
Davis	0.00	0.00	0.00	0.00	0.00	4.23	0.00	0.00
Morgan	0.00	0.00	0.00	0.85	0.00	2.12	0.00	0.00
Rich	0.00	0.00	0.00	1.28	0.00	0.00	5.17	6.37
Summit	0.00	0.00	0.00	0.85	2.26	0.00	0.00	0.00
Weber	8.90	0.00	0.00	2.14	2.64	2.12	0.30	1.42
REGIONAL TOTALS	91.03	66.62	91.14	95.27	89.81	93.13	97.28	98.35
Central Region								
Juab	0.00	0.00	0.00	1.28	0.00*	0.00*	0.00*	0.00*
Salt Lake	1.47	2.97	0.00	0.00	0.37*	1.06*	0.00*	0.00*
Sanpete	0.00	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*
Tooele	0.00	18.10	0.00	0.00	1.88	3.70	1.82	0.24
Utah	5.96	0.00	0.00	0.42	1.88*	0.00*	0.00*	0.00*
Wasatch	1.47	9.05	0.00	0.00	0.00*	0.00*	0.00*	0.00*
REGIONAL TOTALS	8.90	30.27	0.00	1.71	4.15	4.76	1.82	0.24
Southern Region								
Beaver	0.00	0.00	0.00	0.00	0.00	0.00*	0.00*	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	0.00	0.00	7.59	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	0.00	0.00	1.27	1.71	0.00*	0.00*	0.91*	0.00*
Washington	0.00	0.00	0.00	0.00	5.66*	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	0.00	0.00	8.86	1.71	5.66	0.00*	0.91	0.00*
Northeastern Region								
Daggett	0.00	2.97	0.00	0.00	0.00*	0.00*	0.00*	1.18*
Duchesne	0.00	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.24*
Uintah	0.00	0.00	0.00	0.00	0.00	0.53*	0.00*	0.00*
REGIONAL TOTALS	0.00	2.97	0.00	0.00	0.00	0.53	0.00	0.00*
Southeastern Region								
Carbon	0.00	0.00	0.00	0.00	0.00	0.00*	0.00*	0.00*
Emery	0.00	0.00	0.00	0.00	0.37	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	0.00	0.00	1.59*	0.00*	0.00*
REGIONAL TOTALS	0.00	0.00	0.00	0.00	0.37	1.59	0.00	0.00
Unknown counties	0.00	0.00	0.00	1.28	0.00	0.00	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	73.62	74.98	87.68	68.22	68.42	80.42	53.10	64.04
Cache	7.95	0.91	0.72	10.28	9.90	5.84	34.81	17.26
Davis	1.81	0.00	0.00	1.40	1.23	1.03	0.00	0.42
Morgan	3.66	1.82	0.00	1.40	0.30	1.03	2.36	0.42
Rich	0.60	0.00	0.72	0.93	0.00	0.69	2.36	4.16
Summit	0.00	0.00	0.00	0.46	0.61	0.00	0.00	0.00
Weber	3.66	0.00	0.00	1.86	1.85	1.37	0.30	3.12
REGIONAL TOTALS	91.36	77.79	89.13	84.57	82.36	90.39	92.93	89.40
Central Region								
Juab	0.00	0.00	0.72	4.67	0.00*	0.00*	0.59*	0.00*
Salt Lake	1.21	1.82	0.00	0.00	3.40*	1.03*	0.00*	0.00*
Sanpete	0.00	0.91	0.72	0.46	0.00*	0.00*	0.00*	0.00*
Tooele	3.66	12.01	0.72	2.80	4.64	5.16	3.84	9.15*
Utah	1.21	2.77	1.44	1.40	4.95*	0.34*	0.00*	0.21*
Wasatch	0.60	1.82	0.00	0.00	1.23*	1.03*	0.00*	0.00*
REGIONAL TOTALS	6.74	19.45	3.62	9.34	14.24	7.56	4.43	9.36
Southern Region								
Beaver	1.21	0.00	0.72	0.00	0.00*	0.00*	1.18*	0.21*
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	0.00	0.00	2.17	0.00	0.00*	0.00*	0.00*	0.00*
Piute	0.16	0.00	0.00	0.00	0.00*	0.00*	0.00*	0.00*
Sevier	0.00	0.00	3.62	0.93	0.00*	0.69*	0.30*	0.00*
Washington	0.00	0.00	0.00	0.46	2.16*	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	1.21	0.00	6.52	1.39	2.15	0.69	1.48	0.21
Northeastern Region								
Daggett	0.00	0.91	0.00	0.00	0.00*	0.00*	0.00*	0.83*
Duchesne	0.00	0.00	0.00	0.00	0.30*	0.00*	0.00*	0.21*
Uintah	0.60	0.91	0.72	0.00	0.00*	0.34*	0.00*	0.00*
REGIONAL TOTALS	0.60	1.82	0.72	0.00	0.29	0.34	0.00*	1.04
Southeastern Region								
Carbon	0.00	0.00	0.00	0.00	0.61*	0.34*	0.00*	0.00*
Emery	0.00	0.00	0.00	0.00	0.30*	0.00*	1.18*	0.00*
Grand	0.00	0.91	0.00	0.00	0.00*	0.00*	0.00*	0.00*
San Juan	0.00	0.00	0.00	0.00	0.00*	0.69*	0.00	0.00*
REGIONAL TOTALS	0.00	0.91	0.00	0.00	0.92	1.03	1.18	0.00
Unknown counties	0.00	0.00	0.00	4.67	0.00	0.00	0.00	0.00
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, 1955-91.

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
Totals (1959-91)	117,549	252,918	292,408	--	--
Averages (1959-90)	3,590	7,673	8,876	0.82	2.03

Table 10. Hungarian partridge field bag check summary, 1991.

Region and County	All Hunts					Complete 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	31	88	91	46	51	3	11	11	6	55	0.55
Cache	1	2	–	–	–	–	–	–	–	–	–
Davis	–	–	–	–	–	–	–	–	–	–	–
Morgan	–	–	–	–	–	–	–	–	–	–	–
Rich	–	–	–	–	–	–	–	–	–	–	–
Summit	–	–	–	–	–	–	–	–	–	–	–
Weber	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	32	90	91	46	51	3	11	11	6	55	0.55
Central Region											
Juab	–	–	–	–	–	–	–	–	–	–	–
Salt Lake	–	–	–	–	–	–	–	–	–	–	–
Sanpete	–	–	–	–	–	–	–	–	–	–	–
Tooele	–	–	–	–	–	–	–	–	–	–	–
Utah	–	–	–	–	–	–	–	–	–	–	–
Wasatch	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–
Southern Region											
Beaver											
Garfield											
Iron											
Kane				NOT APPLICABLE							
Millard											
Piute											
Sevier											
Washington											
Wayne											
REGIONAL TOTALS											
Northeastern Region											
Daggett											
Duchesne				NOT APPLICABLE							
Uintah											
REGIONAL TOTALS											
Southeastern Region											
Carbon											
Emery				NOT APPLICABLE							
Grand											
San Juan											
REGIONAL TOTALS											
STATE TOTALS	32	90	91	46	51	3	11	11	6	55	0.55

Table 11. Hungarian partridge hunter success trend as determined by field bag check, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr	Birds/ Hunter	Birds/ 100 Hr
Northern Region												
Box Elder	2	0.16	31	1.69	24	1.04	181	9.50	–	–	55	0.55
Cache	–	–	–	–	–	–	–	–	–	–	–	–
Davis	–	–	–	–	–	–	–	–	–	–	–	–
Morgan	–	–	–	–	–	–	–	–	–	–	–	–
Rich	–	–	–	–	–	–	–	–	–	–	–	–
Summit	–	–	–	–	–	–	–	–	–	–	–	–
Weber	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	2	0.16	31	1.69	24	1.04	181	9.50	–	–	55	0.55
Central Region												
Juab	–	–	–	–	–	–	–	–	–	–	–	–
Salt Lake	–	–	–	–	–	–	–	–	–	–	–	–
Sanpete	–	–	–	–	–	–	–	–	–	–	–	–
Tooele	–	–	–	–	–	–	–	–	–	–	–	–
Utah	–	–	–	–	–	–	–	–	–	–	–	–
Wasatch	–	–	–	–	–	–	–	–	–	–	–	–
REGIONAL TOTALS	–	–	–	–	–	–	–	–	–	–	–	–
Southern Region												
Beaver												
Garfield												
Iron												
Kane				NOT APPLICABLE								
Millard												
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne				NOT APPLICABLE								
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery				NOT APPLICABLE								
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	2	0.16	31	1.69	24	1.04	181	9.50	–	–	55	0.55

WILD TURKEY

SUMMARY

Merriam's Turkeys

Turkey populations remain high and well above the 22 year average and percent success average. The percent of hunters observing turkeys declined in 1991, but remains 18 percent above average. Merriam's populations appear to be down somewhat since 1984.

Hunter success and turkey observation data for the 1991 spring season indicated that the East Zion area had a better year than 1990. Total harvest and percent success increased 31 and 50 percent respectively. Thirty-eight birds were reported harvested for this unit. Harvest statistics indicate that the Boulder and LaSal populations increased slightly. The remaining units of the state were closed to hunting. A fall turkey hunting season was not held anywhere in 1991.

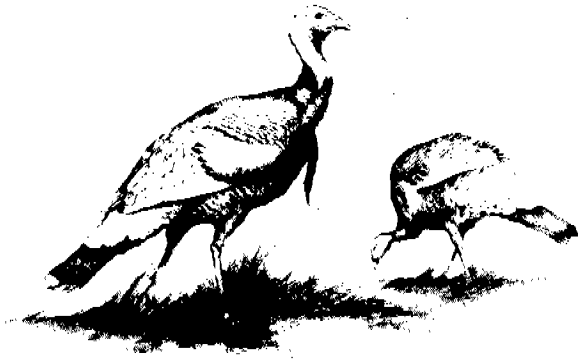
Spring hunting pressure was up again in 1991 and was well above average. Complaints about hunters interfering with each other due to over-crowding were made by 5 of 432 voluntary responses. Three percent of the hunters complained about conflicts with bear hunters. To reduce opening weekend pressure, the season opened Wednesday, May 1, rather than the Saturday nearest May 1. The popularity and demand for turkey hunting in Utah is very great.

Hunter success was up (10 percent) from the previous year. A total of 59 turkeys were harvested in the spring hunt of 1991 compared to 52 taken in 1990 and 59 in 1989 and 66 in 1988. Observations of turkeys remained higher than average in 1991, but it dropped on the La Sal and East Zion areas.

This was the fourth year of drought in southern Utah and may be adversely affected brood survival.

Rio Grande Turkeys

In 1991, Utah sportsmen were given a limited entry opportunity to harvest Rio Grande turkeys. Four units were designated as limited entry for Rio Grand turkeys: 1) Marysvale, 2) New Harmony, 3) Pine Valley and 4) Tropic. Five permits were available for each unit with a $25.00 permit fee required to



participate in the hunt. Hunters were allowed to harvest 1 male bird. One hundred fifty-nine sportsmen applied for the 20 available permits. A random drawing was held to determine successful applicants. Odds for drawing in each area were as follows: 1) Marysvale 1:10, 2) New Harmony 1:5, 3) Pine Valley 1:8 and 4) Tropic 1:9.

Limited brood count data is exhibited in Table 5. Harvest statistics for the limited entry hunts are found in Table 6. Eighteen hunters averaged 3.95 days-afield each to harvest a total of 11 turkeys. Three of the harvested birds were yearlings and 8 were adults. Sixty-one percent of the hunters afield harvested a bird.

Overall, participating hunters felt that the hunt offered a quality experience. There were a couple of complaints about access to private property and the season being open too late in the year.

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 1991 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 1991 spring season compared to 1990 and the previous 22-year average follow:

	1991	Percent change from 1990	Percent change from Average
Permits sold	587	+1	+156
Hunters afield	532	0	+158
Turkeys harvested	59	+13	+136
Hunter-days afield	1,792	-1	+202
Percent hunter success	11	+10	0
Turkeys bagged per hunter-day	0.03	0	-25
Percent of hunters who observed turkeys	49	-5	+18

Again, permit sales and hunters afield increased from 1990 and were well above average. Total harvest increased (from 52 in 1990 to 59 in 1991), which is thirteen percent below the previous year. Hunter success rates increased slightly from 1990 and remained the same as the 22-year average. The proportion of hunters who reported having observed turkeys was 26 percent above average. In 1991, the Boulder Unit accounted for 45% of the hunting pressure based on hunter days afield. The East Zion unit accounted for only 38% of the hunting pressure. However, the East Zion Unit accounted for 64% of the statewide harvest. Reports of heavy snowfall on the East Zion unit during the season may have shifted hunting pressure onto other units.

The trend of spring Merriam's turkey harvest statistics is shown in Figures 1 and 2. Nine percent of the hunters (34) used bows and the remainder reported using shotguns. Twelve turkeys were reported crippled and not recovered. Five of 48 known kills were suspected of being females and another fourteen are suspected of being jakes.

Thirty-five percent of the harvest (17 of 48) occurred on opening day (Wednesday) 14 percent the following day, 18 percent the first weekend and 6 percent the last weekend of the hunt. Fourteen percent of the harvest occurred on weekends compared with 25 percent last year (1990) and 33 percent in 1989 and 44 percent in 1988. It appears that opening the season on May 1 instead of Saturday nearest May 1, is doing what was intended by spreading harvest and pressure out over the season.

Sixteen of 432 hunters commented that the spring hunting season should be opened 1-3 weeks earlier. Fourteen commented that they would like more turkeys. Four suggested that there's not enough access to private property. Five complained about too many hunters. Turkey hunters were also questioned about interference from bear hunters using hounds during the 1991 hunt. Three of 432 hunters complained of interference in previous years. Two hunters from the Boulder Mountain unit complained of interferences that occurred once. Three hunters from the LaSal Mountains unit complained of a total of 5 interferences. Five hunters from the East Zion unit complained of a total of 8 interferences. Overall, interferences from bear hunters was reported by only three percent of the turkey hunters afield.

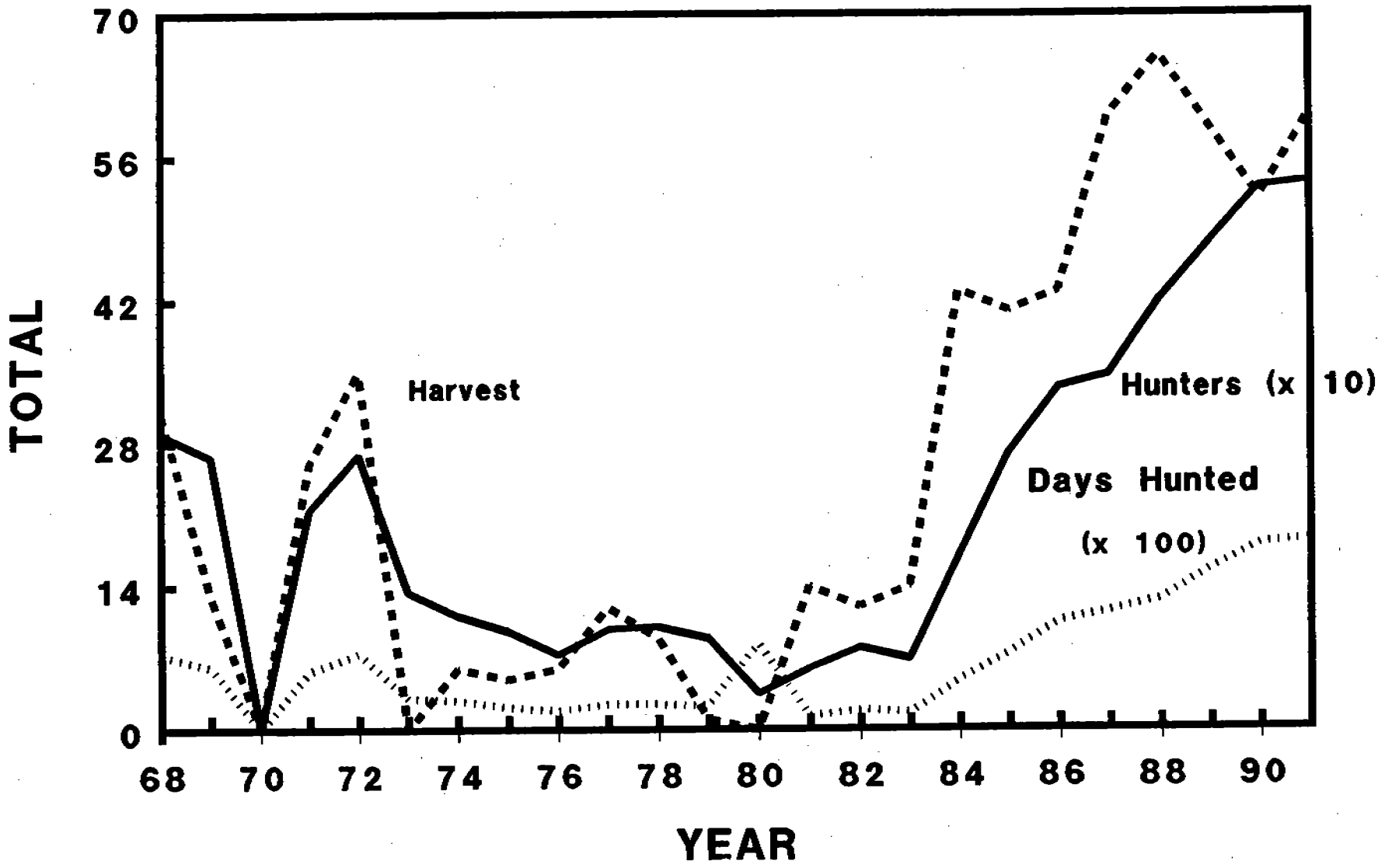


Figure 1. Spring Merriam's wild turkey hunters, harvest, and days hunted, 1968-91.

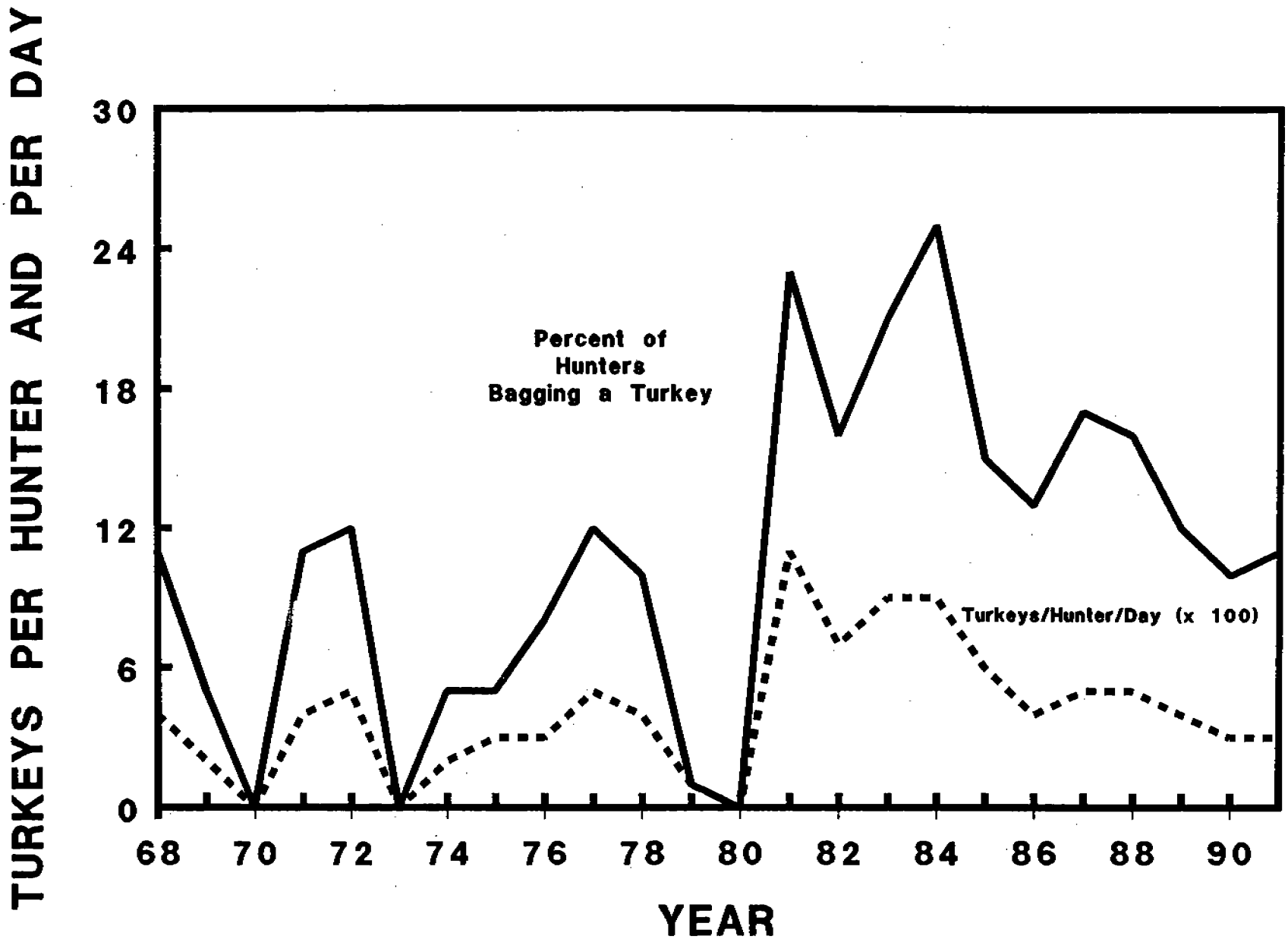


Figure 2. Spring Merriam's wild turkey hunting success, 1968-91.

Table 1. Summary of the 1991 spring Merriam's turkey season.

	Elk Ridge		East Zion		Boulder		LaSal		Beaver		Pine Valley		Mixed Units		STATE TOTALS	
Data	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't*a	*a	Rep't	Calc
Permits Sold															587	
No Hunts															42	
Hunters Afield	C		167	204	189	231	79	97	C		L		13	16	435	532
Hunter-Days	L		558	682	653	799	254	311	L		I		47	57	1,465	1,792
Turkeys Bagged	O		31	38	15	18	2	2	O		M		3	4	48	59
Percent Success	S		19	--	8	--	3	--	S		I		23	–	11	–
Turkeys Bagged Per	E								E		T					
Hunter-Day	D		0.06	--	0.02	--	0.01	--	D		E		0.06	–	0.03	–
Reported Crippling Loss			5	--	5	--	2	–			D		0	–	12	--
(Loss/100 Bagged)	S		16	--	33	--	100	–	S				0	–	25	–
Turkeys Observed	E		718	--	548	--	83	–	E		E		70	–	1,349	–
Gobblers	A		157	–	123	–	19	–	A		N		19	–	299	–
Hens	S		444	–	299	–	46	–	S		T		41	–	789	–
Unidentified	O		121	–	128	–	19	--	O		R		10	–	268	–
Number of Hunters	N								N		Y					
Who Saw Turkeys			91	–	92	–	28	–					9	–	211	–
Percent of Hunters																
Who Saw Turkeys			54	–	49	–	35	–					69	–	49	–

Projection Factor = 587 Permits Sold/480 Questionnaires Returned = 1.2229167.

( )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 (10-36), All Ten of These Were From East Zion
As Their Primary Units; East Zion (1-5), From Boulder; LaSal (2-6), From East Zion.

Table 2. Summary of Merriam's turkey harvest statistics for spring gobbler seasons, 1967-91.

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

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
BOULDER MOUNTAINS	1967	17	2	43	12	0.05	75	
	1968	134	15	330	10	0.05	33	
	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	0.02	49	

Table 2. (Continued)

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

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
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			

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
PINE VALLEY MOUNTAINS	1971	23	4	92	15	0.04	70	
	1972	22	1	52	5	0.02	42	
	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			

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
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			

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
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	

Table 2. (Continued)

Hunting Unit	Year	Hunters Afield	Total Harvest	Hunter-Days Afield	Percent Success*	Turkeys Per Hunter-Day	Percent of Hunters Observing Turkeys	Total Permits**
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
STATE TOTALS (1968-91)		5,075	607	14,842	259			5,625
STATE AVERAGES (1968-90)		207	25	593	11	0.04	41	229

*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 1991 by proclamation.

Table 3. Date of kill, beard and spur length of Merriam's turkeys harvested during spring 1991.

Hunting Unit	Date of Kill	Beard Length (Inches)	Spur Length (1/8 Inches)
EAST ZION	*--	--	--
	*--	7	4
	*--	--	--
	*--	8	6
	5/01	6	8
	5/01	8	4
	5/01	2	4
	5/01	3	2
	5/01	8	3
	5/01	4	1
	5/01	4	4
	5/01	8	--
	5/01	8	7
	5/01	4	6
	*5/02	3	--
	5/02	8	6
	*5/04	1	--
	5/04	4	2
	5/05	9	6
	5/08	8	--
	5/09	5	--
	5/11	7	4
	5/14	8	6
	5/15	6	1
	5/18	4	6
	*5/18	1	--
	5/19	4	8
	5/21	1	1
	5/23	3	2
	5/25	5	--
	5/26	8	3
LA SAL	*--	--	--
	5/23	3	4
BOULDER	5/01	9	6
	5/01	2	2
	5/01	3	2
	5/01	3	2
	*5/01	4	--
	5/01	3	1
	5/01	7	4
	5/03	3	1
	5/03	8	6
	5/04	5	1
	*5/05	4	--
	5/08	8	4
	5/10	2	1
	5/22	4	3
	5/25	4	--

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

Table 4. Statewide summary of fall Merriam's wild turkey harvest statistics, 1964-91.

Year	Permits Sold	Hunters Afield	Hunter-Days Afield	Turkeys Bagged	Percent Success**	Turkeys per Hunter-Day	Crippling Loss/ 100 Bagged	Turkeys Observed	Percent of Hunters Observing Turkeys
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***	--	--	--	--	--	--	--	--	--
TOTALS (1964-84)	2,560	2,340	5,622	682				9,269	
AVERAGES (1964-84)	122	111	268	32	21	0.10	14	441	34

*Some hunter 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. Rio Grande turkey summer inventory summary, 1990-91 (two years of data combined).

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Observations Adult	Mixed Observations Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Ad	Vehicle Miles	Hours of Effort Veh.	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr.
Northern Region																
Box Elder	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	5	--	20	4.00	--	--	--	--	20	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	5	--	20	4.00	--	--	--	--	20	--	--	--	--	--	--	--
Central Region																
Juab	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Utah	9	9	35	3.89	18	77	21	48	112	233	155	13	--	55	68	235
Wasatch	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	9	9	35	3.89	18	77	21	48	112	233	155	13	0	55	68	235
Southern Region																
Beaver	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northeastern Region																
Daggett	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Duchesne	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uintah	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Southeastern Region																
Carbon	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Emery	2	2	8	4.00	8	25	40	50	33	66	60	5	--	2	7	1,186
Grand	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	90	7	--	1	8	--
REGIONAL TOTALS	2	2	8	4.00	8	25	40	50	33	66	150	12	0	3	15	553
STATE TOTALS	16	11	63	3.94	26	102	61	98	165	168	305	25	0	58	83	317

Table 6. Summary of the 1991 spring limited entry Rio Grande turkey season.

Data	Marysvale	New Harmony	Pine Valley	Tropic	STATE TOTALS
Permits Sold	5	5	5	5	20
Applicants For Permits	51	24	39	45	159
No Hunts	0	1	0	1	2
Hunters Afield	5	4	5	4	18
Average Hunter-Days	6.20	4.60	3.50	1.50	3.95
Turkeys Bagged	2	3	3	3	11
Percent Success	40	75	60	75	61
Turkeys Bagged Per Hunter-Day	0.32	0.65	0.86	2.00	2.78
Age of Harvested Turkeys					
Yearling	0	1	1	1	3
Adult	2	2	2	2	8
Reported Crippling Loss	0	1	0	0	1
(Loss/100 Bagged)	0	33	0	0	9
Illegal Kills	0	0	0	2	2

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 1991. Since 1988, the number of birds present on active dancing grounds has been substantially greater than in recent years (Table 1.). In the last three years several "new" grounds have been located. 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.

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 two 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 is shown in Table 2.

Table 1. Summary of sharp-tailed grouse dancing ground counts, 1977-91.

County	Dancing Ground No.	Dancing Ground Name	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Box Elder		West Hills Complex (Located 1977)	41	--	15	4	12	0	14	0	18	46	40	33	40**	75	53**
		Hunsaker's Field (Located 1977)	13	16	3	0	0	0	0	0	0	18	0	3	0	--	3
		South White's Valley (Located 1977)	12	--	0	0	0	6	0	0	2	0	6	7	3	--	10
		North White's Valley (Located 1977)	10	15	0	0	0	0	0	0	0	--	18	11	9**	--	14
		Middle Canyon (Located 1991)															9**
		Pocatello Valley Complex (Located 1978)		42	7	7	19	19	14	5	9	20	20	19	16**	11	4
		Blue Creek (Located 1991)															6**
		Howell Valley #1 (Located 1991)															13**
		Microwave Tower (Located 1987)										6	6	7	9	--	--
		Sunset Pass (Located 1991)															8**
		Nucor (Located 1991)															11**
		Wellsville-Cottonwood (Located 1991)															8**
		Snowville-Radio Tower (Located 1991)															8**
Cache		Bankhead Well (Relocated 1975)	8	7	2	2	0	0	--	--	--	--	--	--	--	--	N/A
		Baxter Ridge (Relocated 1975)	0	--	--	3	5	3	--	--	--	--	--	--	--	--	N/A
		Crow Mountain Complex (Located 1979)		0	13	4	11	3	--	--	--	--	--	0	--	--	27**
		High Creek (Located 1981)					7	--	--	--	--	--	--	0	--	--	22**
		Clarkston (Located 1991)															20**
		Four Mile #1 (Located 1991)															5**
		Four Mile #2 (Located 1991)															4**
Morgan		Cottonwood (Located 1975)	20	22	28	--	--	--	--	--	--	--	--	--	--	--	N/A
		Deep Creek				4	--	--	--	--	--	--	--	--	--	--	N/A
		Bohman Hollow (Located 1991)															11**
Weber		Monastery (Located 1969)	A	A	3	0	0	0	--	--	--	--	--	--	--	--	--
Total Grounds Counted			10	9	15	16	17	15	11	2	11	6	8	12	11	2	18
Total Grouse Counted			104	102	71	24	57	31	28	5	29	84	90	80	77	86	236
Average Number of Grouse/Ground			10.40	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

**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
N/A = NOT ACTIVE

Table 2. Sharp-tailed grouse summer inventory, 1991.

Region and County	Distinct Broods #	Distinct Broods Adults	Distinct Broods Young	Mean Brood	Mixed Young & Adults Adults	Mixed Young & Adults Young	Adults w/o Young	Total Adults	Total Young	Young/ 100 Adults	Vehicle Miles	Hours of Effort Vehicle	Hours of Effort Horse	Hours of Effort Walk	Hours of Effort Total	Birds/ 100 Hr
Northern Region																
Box Elder	7	7	32	4.57	4	6	19	30	38	127	--	--	25	--	25	272
Cache	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	7	7	32	4.57	4	6	19	30	38	127	--	--	25	--	25	272
Central Region																
Juab																
Salt Lake																
Sanpete																
Tooele				NOT APPLICABLE												
Utah																
Wasatch																
REGIONAL TOTALS																
Southern Region																
Beaver																
Garfield																
Iron																
Kane																
Millard				NOT APPLICABLE												
Piute																
Sevier																
Washington																
Wayne																
REGIONAL TOTALS																
Northeastern Region																
Daggett																
Duchesne																
Uintah				NOT APPLICABLE												
REGIONAL TOTALS																
Southeastern Region																
Carbon																
Emery																
Grand				NOT APPLICABLE												
San Juan																
REGIONAL TOTALS																
STATE TOTALS	7	7	32	4.57	4	6	19	30	38	127	--	--	25	--	25	272

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. 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.

The 1990-91 winter was relatively mild in northeastern Utah.

No spring survey of breeding territories was made in 1991.

Brood surveys were conducted in the Painter and Atwood Basin drainages. One brood was observed. Brood size was 2.00 young. Survey conditions were poor due to rainy weather.

Harvest

Fifteen hunters bought $2.00 permits to hunt ptarmigan in Utah in 1991 (Table 3). An estimated 13 hunters actually pursued ptarmigan and 26 birds were killed. This is the most birds harvested since 1984. Hunter success was 1.63 birds bagged per hunter-day. Fifty percent of the hunters afield reported observing ptarmigan.

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

Table 1. Summary of white-tailed ptarmigan breeding territories (pairs), 1981-91.

County	Location	(6/12-14) 1981	(6/16-17) 1982	1983	(6/18-19) 1984	1985	1986	1987	1988	1989(2)	1990	1991
Duchesne	Painter Basin											
Duchesne	Gilbert Basin			C(1)		C(1)	C(1)		N		N	N
Duchesne	Atwood Basin			A		A	A		O		O	O
Duchesne	Yellowstone River			N		N	N					
Summit	Henry's Fork			C		C	C		S		S	S
Summit	Flat Top Mountain			E		E	E		U		U	U
Summit	Lake Blanchard	2		L	1	L	L	3	R		R	R
Summit	Beaver Creek		0	L		L	L		V		V	V
Summit	Smith's Fork			E		E	E		E		E	E
Uintah	Leidy Peak			D		D	D		Y		Y	Y

(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, 1982-91.

Area: Statistics	DATE 8/17-30/82	8/23-30/83	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/88	8/89	8/90	8/91
Painter Basin										
n	(b) 0	(c) 2	–	3	–	–	–	–	–	–
Mean Brood		4.50	–	–	–	–	–	–	–	–
Young/100 Adult Hens		450	–	–	–	–	–	–	–	–
Hens w/o Broods		0	–	–	–	–	–	–	–	–
Adult Males		0	–	–	–	–	–	–	–	–
Henry's Fork										
n	0	0	0	–	4	3	(e) 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	4.25	–	–	–	–	–		4.00	4.00	–
Young/100 Adult Hens	–	–	–	–	–	–		366	400	–
Hens w/o Broods	–	–	–	–	–	–		4	0	–
Adult Males	–	–	–	–	–	–		18	0	–
Smith's Fork										
n	(d) 2	(d) 1	–	–	1			–	–	–
Mean Brood		3.50	6.00	–	–	6.00		–	–	–
Young/100 Adult Hens		350	300	–	–	120		–	–	–
Hens w/o Broods		0	1	–	–	4		–	–	–
Adult Males	0	0	–	–	–			–	–	–
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: / Statistics	DATE 8/17-30/82	8/23-30/83	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/88	8/89	8/90	8/91
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	1		–	–	–	–		–	–	–
Mean Brood	4.00		–	–	–	–		–	–	–
Young/100 Adult Hens	400		–	–	–	–		–	–	–
Hens w/o Broods	0		–	–	–	–		–	–	–
Adult Males	0		–	–	–	–		–	–	–
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									
	8/17-30/82	8/23-30/83	8/26-28-84	8/14-22/85	8/86	8/87	8/25-31/88	8/89	8/90	8/91
East F. Black's Fork										
n						–		–	–	–
Mean Brood						–		–	–	–
Young/100 Adult Hens						–		–	–	–
Hens w/o Broods						–		–	–	–
Adult Males						–		–	–	–
Joulious Creek										
n							(e)			
Mean Brood						1	0	–	–	–
Young/100 Adult Hens						1.00	0.00	–	–	–
Hens w/o Broods						300	0	–	–	–
Adult Males						0	4	–	–	–
						0	0	–	–	–
TOTALS										
n							(e)			
Mean Brood	3	3	1	3	5	6	6	2	1	1
Young/100 Adult Hens	4.20	4.00	6.00	3.50	3.75	3.86	3.33	4.00	4.00	2.00
Hens w/o Broods		400	300	350	375	236	333	366	400	200
Adult Males		0	2	0	0	7	19	4	0	0
Total Birds Observed		0	0	0	0	0	0		0	0
		20	–	18	19	47	45	18	5	3

b After 4 days of searching.

c Only 3 days of searching, suspect a minimum of 5 broods present on Trail Rider Pass this year.

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, 1982-91. Estimates are calculated based upon 100 percent samples or projection factors.

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

**For the first time a handling fee of $2.00 per permit was charged.

Projection Factor = 1.25 (15 permits issued/12 questionnaires returned).

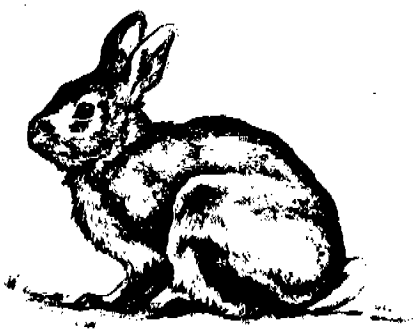
RABBITS AND HARES

SUMMARY

Cottontail Rabbits

Cottontail populations decreased from a short term high in 1988 and are below the 10 year average.

Summer roadside counts indicated a decreased population density statewide. Harvest statistics indicated decreased hunter success, as in the previous year, and, is still 11 percent below average. Field bag checks on opening weekend indicated below average hunter success.



Snowshoe Hares

The 1991 snowshoe hare hunting season indicated a slight decrease in populations.

Hunter pressure decreased 16 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 1991 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 1991 compared to 1990 and the previous 10-year (1981-90) average follow:

	1991	Percent change from 1990	Average
Total miles driven	558	-37	-64
Total cottontails counted	94	-73	-84
Cottontails observed per mile	0.17	-56	-54
Young observed per 100 adults	64	-12	-21

A increased breeding population for 1991 was again indicated by 1990 harvest statistics. Production data from roadside counts indicated a decline in the population. The cottontail per mile index decreased 56 percent and was 54 percent below average.

Harvest

Hunter Questionnaire

Results of the 1991 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 1991 season compared to 1990 and the 24-year average follow:

	1991	Percent change from 1990	Average
Cottontail hunters	21,137	-8	-15
Cottontail harvest	111,407	-13	-31
Hunter-days afield	82,772	-11	-19
Cottontails per hunter-day	1.35	-1	-11
Cottontails per hunter	5.27	-5	-15

Total hunters and effort decreased from 1990. Total harvest decreased 15 percent. Total harvest was 31 percent below average. Hunter success was 11 percent below average. Harvest data indicate a year of below average populations of cottontails. The drought may be negatively affecting rabbit populations statewide. A population crash was apparent in the spring of 1984, and has been confirmed by the 1984 and 1985 harvest data. Populations recovered rapidly in 1986, 1987, and 1988. Populations may be headed downward again. The last six winters have not been harsh.

Field Bag Checks

Results of field bag checks for 1991 are shown in Table 9. Trends of hunter success as determined by bag checks are shown in Table 10. Following is a comparison of the 1991 field bag check data to 1990 and the previous 10-year (1981-90) average.

	1991	Percent change from 1990	Average
Total hunters checked	171	+122	+51
Total hours hunted	734	+251	+162
Cottontails per hunter (complete hunts)	1.26	-73	-42
Cottontails bagged per 100 hours	29	-80	-61
Hours per hunter-day (complete hunts)	4.29	+33	+40
Hours per cottontail bagged (complete hunts)	3.41	+139	+75

Hunter success (cottontails per hunter) decreased and was well below average. Only 171 hunters were checked. Sample sizes were small which may account for the inconsistency with mail questionnaire results.

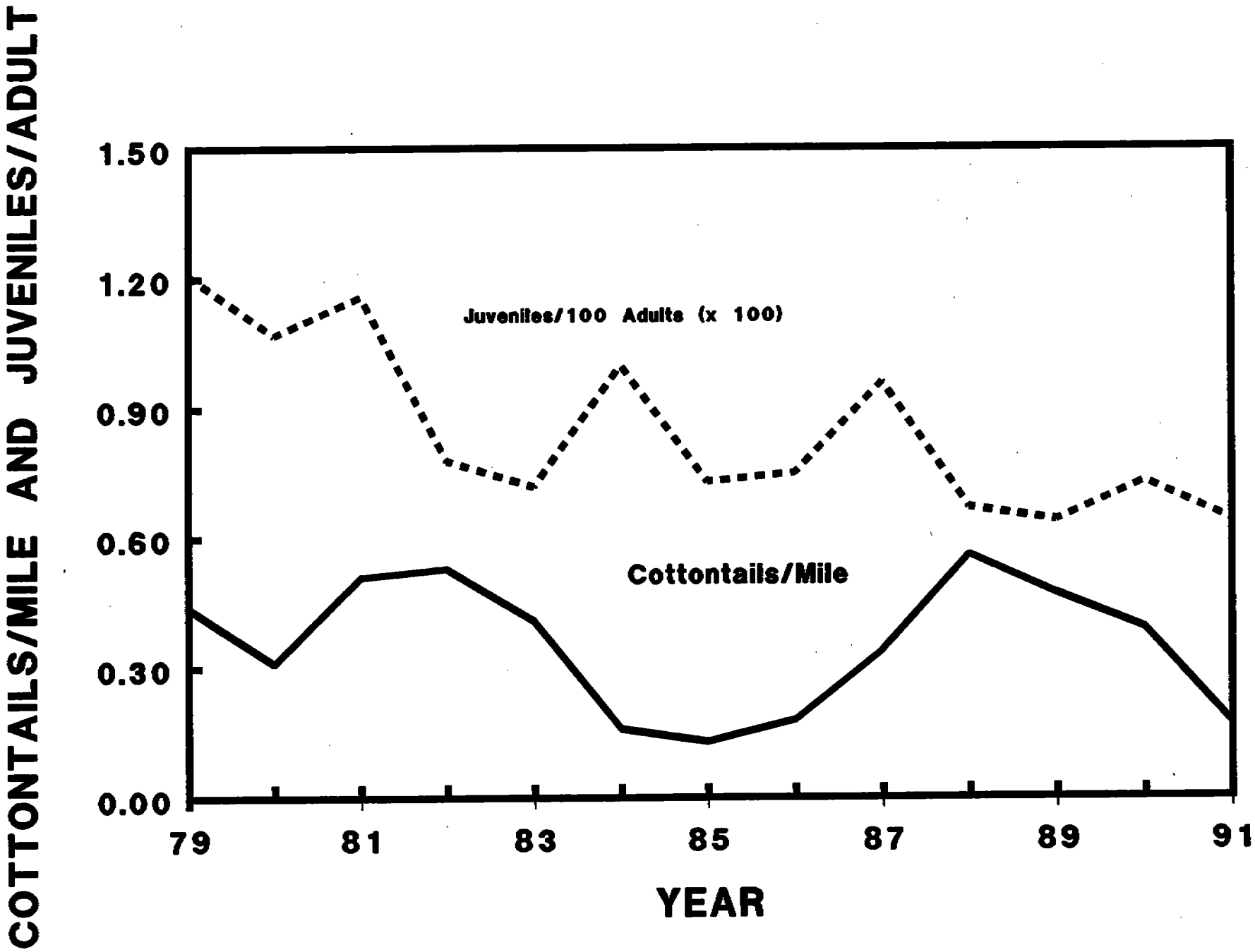


Figure 1. Cottontail rabbit population indices trends, 1979-91.

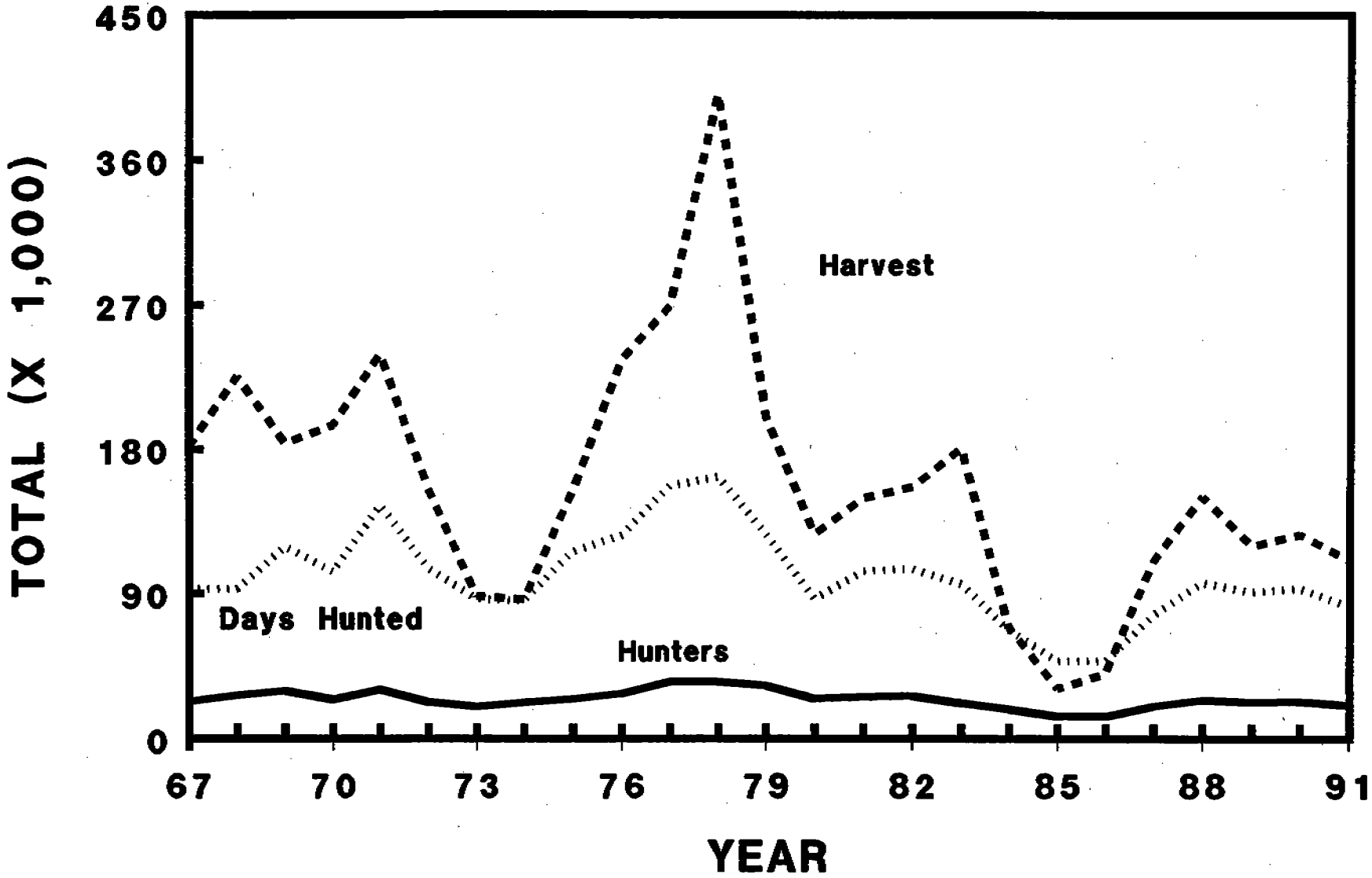


Figure 2. Statewide trends of cottontail rabbit harvest statistics, 1967-91.

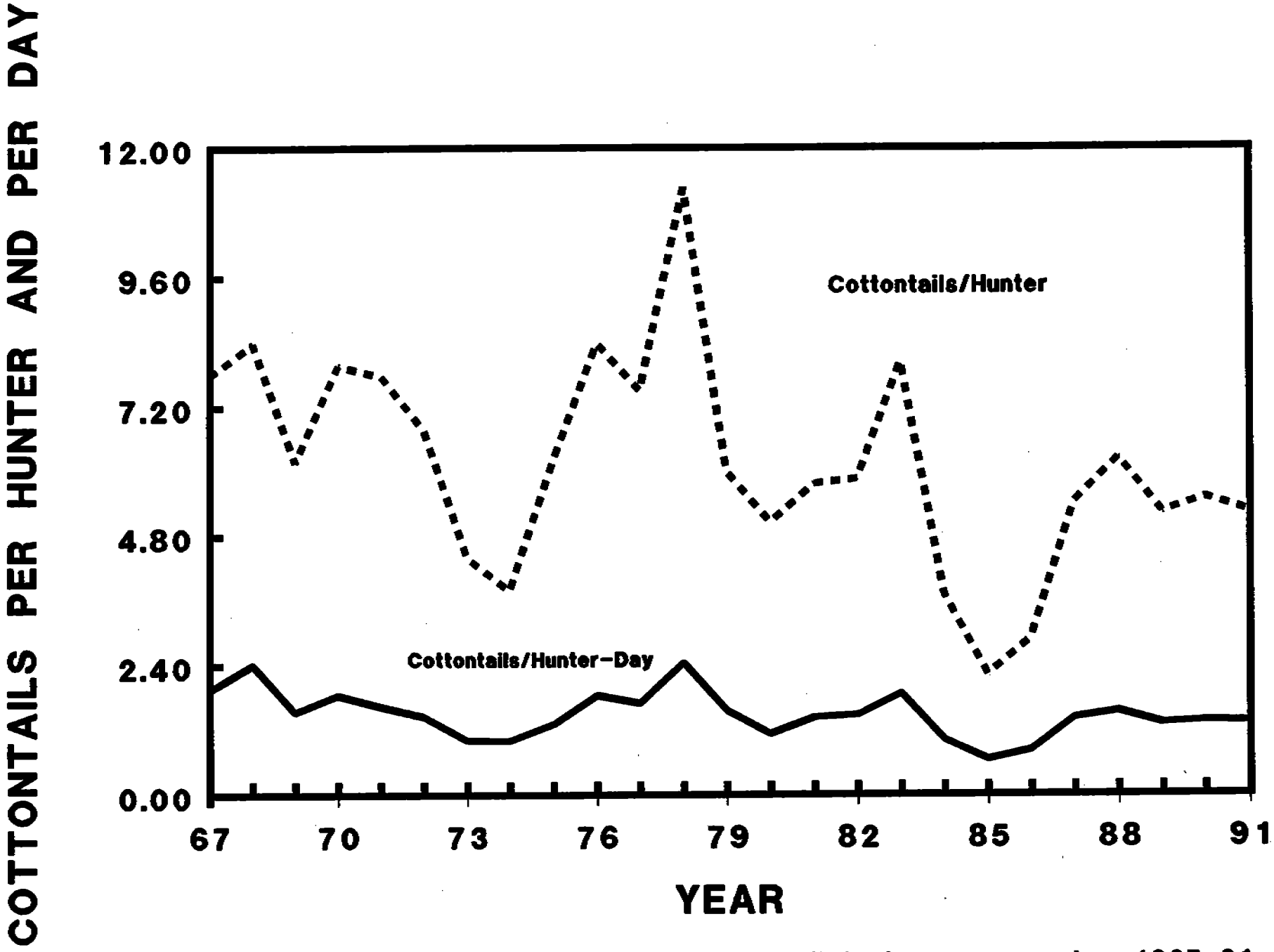


Figure 3. Statewide trends of cottontail rabbit hunter success rates, 1967-91.

FIGURE4. COTTONTAIL RABBIT PRODUCTION INDICES, 1967-91.

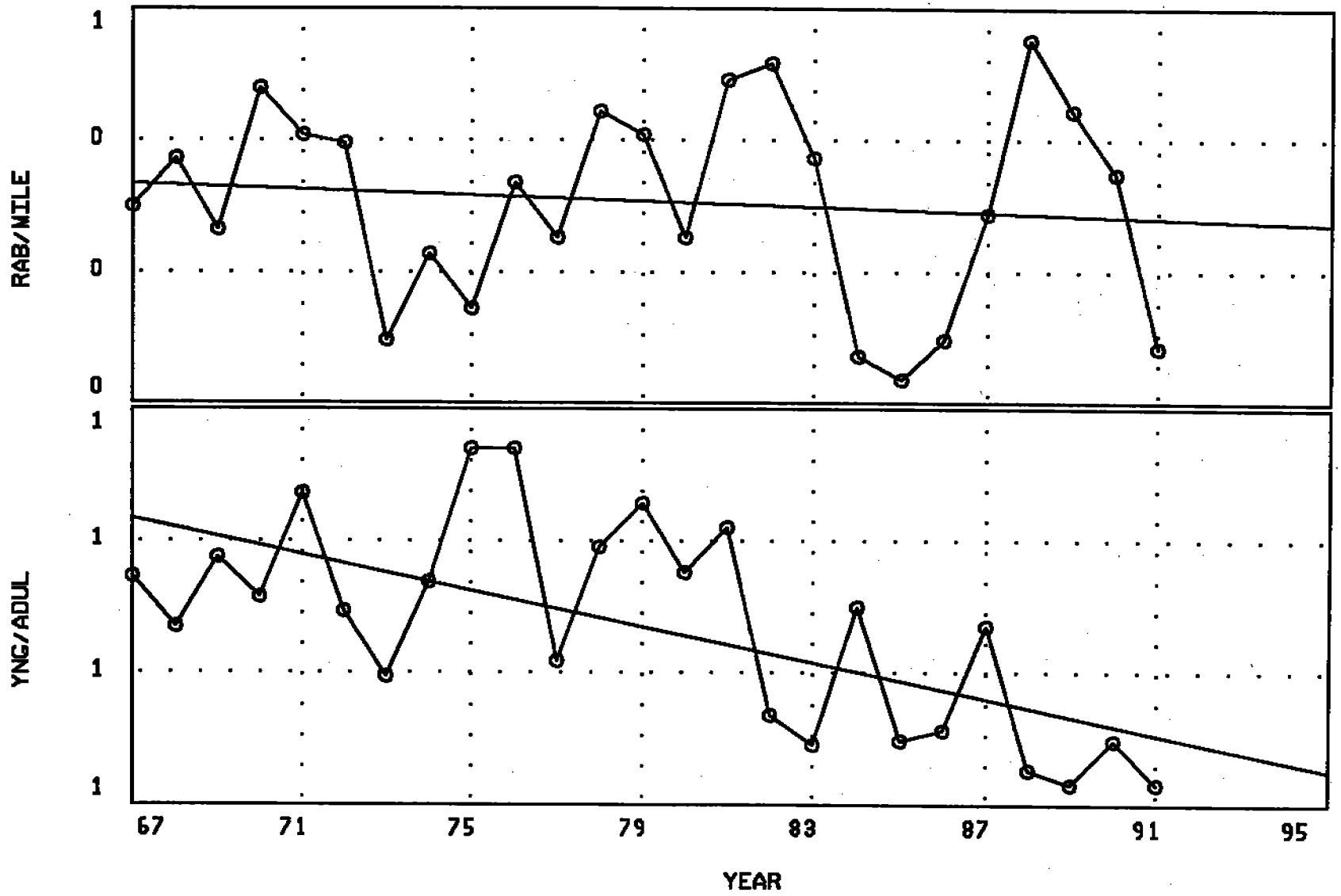


Table 1. Cottontail rabbit summer inventory summary, 1991.

Region and County	Miles Driven	Rabbits Observed				Young/ 100 Adults	Rabbits/ Mile
		Adults	Young	Unclassified	Total		
Northern Region							
Box Elder	90	8	1	--	9	13	0.10
Cache	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--
Summit	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--
REGIONAL TOTALS	90	8	1	--	9	13	0.10
Central Region							
Juab	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--
Sanpete	33	2	1	--	3	50	0.09
Tooele	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--
REGIONAL TOTALS	33	2	1	--	3	50	0.09
Southern Region							
Beaver	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	369	0.83
REGIONAL TOTALS	--	--	--	--	--	369	0.83
Northeastern Region							
Daggett	--	--	--	--	--	--	--
Duchesne	105	2	1	--	3	50	0.03
Uintah	--	--	--	--	--	--	--
REGIONAL TOTALS	105	2	1	--	3	50	0.03
Southeastern Region							
Carbon	90	--	6	12	18	--	0.20
Emery	90	--	--	33	33	--	0.37
Grand	60	--	--	3	3	--	0.05
San Juan	90	13	7	5	25	54	0.28
REGIONAL TOTALS	330	13	13	53	79	100	0.24
STATE TOTALS	558	25	16	53	94	64	0.17

Table 2. Summary of cottontail rabbits observed per mile during summer inventory, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	0.37	0.01	--	--	--	0.02	0.03	--	0.03	0.39	0.10	
Cache	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	0.13	0.16	--	--	--	0.02	--	--	--	--	--	
Summit	--	--	0.18	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.26	0.06	0.18	--	--	0.02	0.03	--	0.03	0.39	0.10	0.14
Central Region												
Juab	1.12	0.38	--	0.00	0.00	0.02	0.00	0.54	0.30	0.23	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	1.29	0.78	0.57	--	--	--	--	0.47	0.22	0.65	0.09	
Tooele	0.13	0.10	--	0.02	0.00	0.01	0.02	0.18	--	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	0.85	0.43	0.57	0.01	0.00	0.01	0.02	0.36	0.26	0.45	0.09	0.30
Southern Region												
Beaver	0.19	0.12	0.04	0.01	0.03	0.10	0.04	0.06	--	--	--	
Garfield	--	0.27	0.25	--	0.06	0.13	--	--	--	--	--	
Iron	--	0.18	0.38	0.27	0.33	0.53	0.26	--	--	--	--	
Kane	0.69	--	--	--	0.52	0.47	0.97	1.09	--	--	--	
Millard	0.56	0.28	0.16	0.04	0.02	0.08	0.09	0.09	--	0.08	--	
Piute	0.10	0.13	0.03	--	--	0.06	0.05	--	--	--	--	
Sevier	0.83	0.27	0.23	--	--	--	--	--	--	--	--	
Washington	0.24	0.32	0.38	--	0.23	0.12	0.12	0.36	0.33	--	--	
Wayne	0.49	0.69	--	0.80	--	0.20	0.24	0.34	--	--	0.83	
REGIONAL TOTALS	0.45	0.29	0.19	0.18	0.19	0.24	0.27	0.33	0.33	0.08	0.83	0.26
Northeastern Region												
Daggett	0.32	0.45	0.58	0.22	0.12	0.22	0.66	0.85	0.50	0.55	--	
Duchesne	1.78	2.28	0.58	0.28	0.13	0.44	0.86	1.49	1.04	0.23	0.03	
Uintah	0.48	1.97	2.97	0.11	0.00	0.02	0.36	1.26	1.40	1.00	--	
REGIONAL TOTALS	0.81	1.46	1.21	0.21	0.09	0.25	0.65	1.18	0.91	0.57	0.03	0.73
Southeastern Region												
Carbon	0.12	0.10	0.11	--	0.05	0.08	0.33	0.41	0.34	0.02	0.20	
Emery	0.41	0.18	0.23	0.18	0.20	--	0.40	0.34	0.33	0.40	0.37	
Grand	0.32	0.67	0.15	0.13	0.67	0.80	--	0.10	0.06	0.01	0.05	
San Juan	0.42	1.26	0.40	--	0.14	0.37	0.29	0.59	0.55	0.80	0.28	
REGIONAL TOTALS	0.36	0.58	0.25	0.17	0.13	0.17	0.38	0.36	0.32	0.36	0.24	0.31
STATE TOTALS	0.51	0.53	0.41	0.16	0.13	0.18	0.34	0.56	0.47	0.39	0.17	0.37

Table 3. Summary of cottontail rabbit young per 100 adults, 1981-91.

Region and County	Year 1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	Average 1981-90
Northern Region												
Box Elder	77	--	--	--	--	0	25	--	200	200	13	
Cache	--	--	--	--	--	--	--	--	--	--	--	
Davis	--	--	--	--	--	--	--	--	--	--	--	
Morgan	--	--	--	--	--	--	--	--	--	--	--	
Rich	43	63	67	--	--	50	--	--	--	--	--	
Summit	--	--	--	--	--	--	--	--	--	--	--	
Weber	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	71	63	67	--	--	20	25	--	200	200	13	92
Central Region												
Juab	102	53	--	0	0	0	0	20	13	--	--	
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	
Sanpete	197	209	225	--	--	--	--	88	40	40	50	
Tooele	200	80	--	--	--	--	100	120	--	--	--	
Utah	--	--	--	--	--	--	--	--	--	--	--	
Wasatch	--	--	--	--	--	--	--	--	--	--	--	
REGIONAL TOTALS	147	140	225	0	0	0	100	57	23	27	50	72
Southern Region												
Beaver	55	83	33	--	--	22	--	--	--	--	--	
Garfield	--	38	120	--	33	38	--	--	--	--	--	
Iron	--	57	35	40	82	75	--	--	--	--	--	
Kane	106	--	--	--	100	71	111	149	--	--	--	
Millard	170	94	125	75	200	170	114	110	--	100	--	
Piute	--	--	200	--	--	--	--	--	--	--	--	
Sevier	--	33	61	--	--	--	--	--	--	--	--	
Washington	123	150	81	--	73	133	175	100	131	--	--	
Wayne	287	343	--	380	--	360	2100	244	--	--	369	
REGIONAL TOTALS	184	145	82	215	85	100	137	136	131	100	369	132
Northeastern Region												
Daggett	104	140	66	33	46	136	116	30	59	55	--	
Duchesne	42	37	16	22	15	26	24	39	29	--	50	
Uintah	176	44	76	233	0	100	264	170	239	95	--	
REGIONAL TOTALS	67	48	63	42	31	58	74	46	82	58	50	57
Southeastern Region												
Carbon	83	66	40	--	--	150	567	500	400	400	--	
Emery	97	43	75	217	216	--	54	50	--	--	--	
Grand	137	148	150	33	300	300	--	--	--	--	--	
San Juan	105	72	43	--	43	61	47	49	80	60	54	
REGIONAL TOTALS	103	82	54	156	88	69	100	64	110	67	100	89
STATE TOTALS	116	78	72	100	73	75	96	67	64	73	64	81

Table 4. Summary of cottontail rabbit hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	COTTONTAILS BAGGED	COTTONTAILS PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	157	7,724	10,089	1.31	9.33	9.06
CACHE	33	1,269	1,791	1.41	1.53	1.61
DAVIS	4	104	156	1.50	0.13	0.14
MORGAN	9	295	452	1.53	0.36	0.41
RICH	53	1,757	4,610	2.62	2.12	4.14
SUMMIT	19	1,791	2,226	1.24	2.16	2.00
WEBER	8	574	504	0.88	0.69	0.45
REGIONAL TOTALS	283	13,517	19,831	1.47	16.33	17.80
CENTRAL REGION						
JUAB	110	5,097	8,559	1.68	6.16	7.68
SALT LAKE	7	556	400	0.72	0.67	0.36
SANPETE	46	2,470	3,113	1.26	2.98	2.80
TOOELE	257	15,187	18,666	1.23	18.35	16.76
UTAH	134	6,975	6,906	0.99	8.43	6.20
WASATCH	19	1,148	1,217	1.06	1.39	1.09
REGIONAL TOTALS	573	31,435	38,863	1.24	37.98	34.88
SOUTHERN REGION						
BEAVER	12	1,478	1,026	0.69	1.79	0.92
GARFIELD	6	226	104	0.46	0.27	0.09
IRON	13	1,078	1,148	1.06	1.30	1.03
KANE	9	1,583	1,478	0.93	1.91	1.33
MILLARD	55	4,070	4,662	1.15	4.92	4.18
PIUTE	4	121	69	0.57	0.15	0.06
SEVIER	42	2,992	1,948	0.65	3.61	1.75
WASHINGTON	25	2,209	1,496	0.68	2.67	1.34
WAYNE	18	1,043	1,252	1.20	1.26	1.12
REGIONAL TOTALS	184	14,804	13,186	0.89	17.89	11.84
NORTHEASTERN REGION						
DAGGETT	33	2,000	3,653	1.83	2.42	3.28
DUCHESNE	91	5,688	12,229	2.15	6.87	10.98
UINTAH	111	6,297	10,142	1.61	7.61	9.10
REGIONAL TOTALS	235	13,986	26,025	1.86	16.90	23.36
SOUTHEASTERN REGION						
CARBON	56	3,218	5,619	1.75	3.89	5.04
EMERY	39	3,514	3,635	1.03	4.25	3.26
GRAND	7	417	730	1.75	0.50	0.66
SAN JUAN	20	1,878	3,514	1.87	2.27	3.15
REGIONAL TOTALS	122	9,028	13,499	1.50	10.91	12.12
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	1,397	82,772	111,407	1.35	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 5. Summary of cottontail rabbits bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	0.72	0.46	0.73	2.25	1.78	1.29	1.49	1.31
Cache	0.71	0.93	0.18	1.78	0.37	0.66	0.87	1.41
Davis	0.57	0.00	4.00	0.67	0.50	1.00	0.25	1.50
Morgan	1.19	0.55	0.05	1.17	1.50	0.17	0.43	1.53
Rich	1.61	0.52	0.74	1.33	1.86	1.37	2.52	2.62
Summit	0.17	0.35	0.29	1.44	0.92	0.58	0.72	1.24
Weber	0.68	0.13	0.69	2.83	0.61	0.27	1.06	0.88
REGIONAL TOTALS	1.76	0.40	0.57	2.14	1.49	1.09	1.55	1.47
Central Region								
Juab	1.41	0.56	0.78	1.74	1.52	1.52	1.55	1.68
Salt Lake	0.88	0.21	1.06	1.26	0.53	1.35	0.79	0.72
Sanpete	0.48	0.35	0.60	1.25	1.62	1.10	0.85	1.26
Tooele	0.82	0.53	0.71	1.32	1.37	1.20	1.08	1.23
Utah	0.82	0.65	0.94	1.21	1.04	0.90	0.84	0.99
Wasatch	0.69	0.48	0.84	1.28	0.99	1.50	0.69	1.06
REGIONAL TOTALS	0.88	0.53	0.78	1.32	1.27	1.18	1.03	1.24
Southern Region								
Beaver	0.28	0.50	0.61	1.00	1.44	0.41	1.17	0.69
Garfield	0.84	1.00	1.25	0.71	1.41	1.97	1.03	0.46
Iron	1.48	0.60	0.87	0.44	1.58	0.85	1.21	1.06
Kane	2.19	2.07	1.12	0.58	1.41	1.00	0.90	0.93
Millard	0.89	0.86	0.70	0.82	1.09	1.27	1.84	1.15
Piute	0.67	1.00	1.00	1.00	1.25	0.28	1.36	0.57
Sevier	0.79	0.56	0.56	1.04	1.45	0.97	1.45	0.65
Washington	0.93	1.08	0.94	0.95	2.10	0.91	0.89	0.68
Wayne	1.93	1.45	1.53	1.22	1.49	1.05	1.34	1.20
REGIONAL TOTALS	1.06	0.94	0.89	0.85	1.41	1.05	1.30	0.89
Northeastern Region								
Daggett	1.19	1.00	1.96	3.16	3.02	1.65	1.79	1.83
Duchesne	1.62	0.63	1.01	1.63	2.38	1.49	1.83	2.15
Uintah	1.47	0.49	0.49	1.89	2.32	3.16	2.41	1.61
REGIONAL TOTALS	1.51	0.59	0.96	1.95	2.40	2.13	2.10	1.86
Southeastern Region								
Carbon	0.52	0.69	0.49	1.34	1.29	0.97	1.43	1.75
Emery	0.78	0.64	1.05	1.00	1.78	0.80	1.06	1.03
Grand	1.53	1.74	1.28	2.00	2.03	1.00	1.58	1.75
San Juan	1.51	0.89	1.27	2.57	1.67	1.28	1.37	1.87
REGIONAL TOTALS	0.90	0.77	0.93	1.37	1.55	0.93	1.28	1.50
Unknown counties	0.00	1.11	2.50	1.04	1.49	2.00	0.00	0.00
STATE TOTALS	1.02	0.65	0.83	1.43	1.55	1.32	1.36	1.35

Table 6. Percentage distribution of cottontail rabbit harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	5.49	3.82	5.68	12.83	12.11	7.20	9.84	9.06
Cache	0.50	0.96	0.25	0.91	0.27	0.47	1.07	1.61
Davis	0.12	0.00	0.41	0.04	0.12	0.07	0.02	0.14
Morgan	0.73	1.16	0.10	0.15	0.19	0.03	0.05	0.41
Rich	2.08	0.89	1.98	0.53	1.05	1.92	6.07	4.14
Summit	0.29	1.16	0.56	0.57	0.77	0.73	0.63	2.00
Weber	0.56	0.27	0.56	1.44	0.42	0.14	0.27	0.45
REGIONAL TOTALS	9.77	8.26	9.53	16.49	14.96	10.55	17.95	17.80
Central Region								
Juab	5.28	2.04	2.84	5.17	6.05	6.32	5.86	7.68
Salt Lake	2.29	0.48	0.91	1.19	0.49	0.40	0.68	0.36
Sanpete	0.82	1.23	2.38	5.61	3.74	3.70	3.34	2.80
Tooele	9.18	10.51	9.99	11.67	13.72	14.73	11.60	16.76
Utah	5.43	8.26	7.66	11.07	8.61	5.20	6.51	6.20
Wasatch	0.91	1.57	1.83	1.73	0.92	0.47	0.44	1.09
REGIONAL TOTALS	23.91	24.09	25.61	36.47	33.55	30.82	28.43	34.88
Southern Region								
Beaver	0.32	1.30	1.12	0.95	0.68	0.40	0.44	0.92
Garfield	0.47	0.61	3.04	0.26	0.42	2.66	1.16	0.09
Iron	1.82	1.23	2.94	0.26	1.54	0.92	2.02	1.03
Kane	2.05	1.98	2.43	0.33	0.84	1.23	0.90	1.33
Millard	3.64	5.66	4.26	3.48	2.99	2.80	5.02	4.18
Piute	0.12	0.20	0.30	0.08	0.22	0.09	0.61	0.06
Sevier	0.56	1.23	0.91	1.22	2.28	1.66	3.07	1.75
Washington	5.05	10.99	6.09	0.77	1.90	2.69	2.02	1.34
Wayne	2.43	2.18	1.17	0.48	0.77	1.02	1.08	1.12
REGIONAL TOTALS	16.46	25.35	22.26	7.88	11.69	13.46	16.33	11.84
Northeastern Region								
Daggett	2.20	1.84	5.58	4.41	2.82	3.21	2.37	3.28
Duchesne	13.17	9.21	7.05	7.68	9.43	12.37	8.55	10.98
Uintah	14.23	5.87	3.35	7.03	13.20	19.31	13.44	9.10
REGIONAL TOTALS	29.61	16.93	15.97	19.13	25.45	34.89	24.27	23.36
Southeastern Region								
Carbon	4.90	7.30	4.87	6.26	4.65	4.56	5.83	5.04
Emery	4.69	9.76	9.53	5.63	5.91	3.78	4.20	3.26
Grand	5.99	4.16	5.07	2.53	0.74	0.26	0.66	0.66
San Juan	4.66	3.41	6.90	2.90	0.77	1.43	2.33	3.15
REGIONAL TOTALS	20.25	24.64	26.37	17.34	12.09	10.04	13.02	12.12
Unknown counties	0.00	0.68	0.25	2.66	2.24	0.24	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	7.77	5.40	6.52	8.17	10.53	7.34	9.00	9.33
Cache	0.72	0.66	1.18	0.73	1.15	0.93	1.67	1.53
Davis	0.21	1.42	0.08	0.09	0.37	0.09	0.09	0.13
Morgan	0.63	1.37	1.65	0.19	0.20	0.27	0.15	0.36
Rich	1.32	1.11	2.24	0.57	0.87	1.84	3.28	2.12
Summit	1.74	2.13	1.61	0.57	1.30	1.64	1.19	2.16
Weber	0.84	1.33	0.68	0.73	1.06	0.68	0.35	0.69
REGIONAL TOTALS	13.23	13.42	13.97	11.07	15.51	12.80	15.74	16.33
Central Region								
Juab	3.84	2.39	3.05	4.26	6.15	5.48	5.15	6.16
Salt Lake	2.67	1.46	0.72	1.36	1.46	0.39	1.17	0.67
Sanpete	1.74	2.26	3.30	6.45	3.57	4.41	5.35	2.98
Tooele	11.43	12.98	11.68	12.63	15.44	16.16	14.61	18.35
Utah	6.78	8.24	6.81	13.07	12.83	7.61	10.50	8.43
Wasatch	1.35	2.13	1.82	1.94	1.44	0.41	0.86	1.39
REGIONAL TOTALS	27.82	29.46	27.38	39.73	40.90	34.45	37.63	37.98
Southern Region								
Beaver	1.20	1.68	1.52	1.36	0.73	1.27	0.51	1.79
Garfield	0.57	0.40	2.03	0.54	0.46	1.77	1.54	0.27
Iron	1.26	1.33	2.84	0.85	1.51	1.41	2.27	1.30
Kane	0.96	0.62	1.82	0.82	0.92	1.61	1.36	1.91
Millard	4.20	4.30	5.08	6.07	4.24	2.91	3.72	4.92
Piute	0.18	0.13	0.25	0.12	0.27	0.41	0.62	0.15
Sevier	0.72	1.42	1.35	1.68	2.43	2.25	2.88	3.61
Washington	5.52	6.60	5.42	1.17	1.40	3.91	3.10	2.67
Wayne	1.29	0.97	0.63	0.57	0.80	1.27	1.10	1.26
REGIONAL TOTALS	15.91	17.46	20.95	13.23	12.81	16.82	17.10	17.89
Northeastern Region								
Daggett	1.89	1.19	2.37	2.00	1.44	2.57	1.80	2.42
Duchesne	8.34	9.44	5.80	6.74	6.13	10.91	6.36	6.87
Uintah	9.87	7.84	5.71	5.34	8.81	8.05	7.55	7.61
REGIONAL TOTALS	20.11	18.48	13.88	14.09	16.38	21.52	15.71	16.90
Southeastern Region								
Carbon	9.66	6.82	8.34	6.68	5.60	6.20	5.55	3.89
Emery	6.12	9.92	7.58	8.08	5.15	6.23	5.39	4.25
Grand	3.99	1.55	3.30	1.81	0.56	0.34	0.57	0.50
San Juan	3.15	2.48	4.53	1.62	0.72	1.48	2.31	2.27
REGIONAL TOTALS	22.93	20.78	23.74	18.19	12.04	14.25	13.82	10.91
Unknown counties	0.00	0.40	0.08	3.65	2.33	0.16	0.00	0.00
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, 1967-91.

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
Totals (1967-91)	617,130	3,992,724	2,523,633	–	–
Averages (1967-90)	24,833	161,722	101,703	1.51	6.19

Table 9. Cottontail rabbit field bag check summary, 1991.

Region and County	All Hunts					Complete Hunts					
	Total Parties	Total Hunters	Total Hours	Total Rabbits	Rabbits/ 100 Hr	Complete Hunts	Total Hunters	Total Hours	Total Rabbits	Rabbits/ 100 Hr	Rabbits/ Hunter
Northern Region											
Box Elder	13	28	26	36	138	3	7	8	25	313	3.57
Cache	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	--	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	--	--	--	--	--	--	--
Summit	1	2	2	1	50	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	14	30	28	37	132	3	7	8	25	313	3.57
Central Region											
Juab	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--
Tooele	--	--	--	--	--	--	--	--	--	--	--
Utah	--	--	--	--	--	--	--	--	--	--	--
Wasatch	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
Southern Region											
Beaver	--	--	--	--	--	--	--	--	--	--	--
Garfield	--	--	--	--	--	--	--	--	--	--	--
Iron	--	--	--	--	--	--	--	--	--	--	--
Kane	--	--	--	--	--	--	--	--	--	--	--
Millard	--	--	--	--	--	--	--	--	--	--	--
Piute	--	--	--	--	--	--	--	--	--	--	--
Sevier	--	--	--	--	--	--	--	--	--	--	--
Washington	--	--	--	--	--	--	--	--	--	--	--
Wayne	--	--	--	--	--	--	134	639	137	21	1.02
REGIONAL TOTALS	--	--	--	--	--	--	134	639	137	21	1.02
Northeastern Region											
Daggett	--	--	--	--	--	--	--	--	--	--	--
Duchesne	3	8	23	11	48	3	8	23	11	48	1.38
Uintah	21	38	90	56	62	13	22	64	42	66	1.91
REGIONAL TOTALS	24	46	113	67	59	16	30	87	53	61	1.77
Southeastern Region											
Carbon	--	--	--	--	--	--	--	--	--	--	--
Emery	--	--	--	--	--	--	--	--	--	--	--
Grand	--	--	--	--	--	--	--	--	--	--	--
San Juan	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	--	--	--	--	--	--	--	--	--	--	--
STATE TOTALS	38	76	141	104	74	19	171	734	215	29	1.26

Table 10. Cottontail rabbit hunter success trend as determined by field bag check, 1986-91.

Region and County	1986		1987		1988		1989		1990		1991	
	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr	Rabbits/ Hunter	Rabbits/ 100 Hr
Northern Region												
Box Elder	0	0.00	28	1.43	44	1.84	314	3.14	25	1.50	313	3.57
Cache	--	--	--	--	--	--	--	--	--	--	--	--
Davis	--	--	--	--	--	--	100	1.25	--	--	--	--
Morgan	--	--	--	--	--	--	--	--	--	--	--	--
Rich	--	--	--	--	43	1.50	42	1.86	--	--	--	--
Summit	--	--	--	--	--	--	--	--	--	--	--	--
Weber	--	--	--	--	--	--	--	--	--	--	--	--
REGIONAL TOTALS	0	0.00	28	0.20	44	1.77	93	2.22	25	0.21	313	3.57
Central Region												
Juab	--	--	--	--	--	--	--	--	--	--	--	--
Salt Lake	--	--	--	--	--	--	--	--	--	--	--	--
Sanpete	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	0	3.33	379	8.00	--	--	--	--	--	--
Duchesne	0	0.00	63	3.33	104	2.94	--	--	450	9.00	48	1.38
Uintah	100	1.50	70	1.76	147	4.00	93	2.20	179	8.10	66	1.91
REGIONAL TOTALS	50	0.75	68	1.93	149	4.01	93	0.73	187	5.10	61	1.77
Southeastern Region												
Carbon	158	3.80	--	--	0	0.00	--	--	--	--	--	--
Emery	33	1.00	--	--	33	1.00	--	--	--	--	--	--
Grand	--	--	--	--	42	0.83	--	--	--	--	--	--
San Juan	--	--	--	--	20	0.33	--	--	--	--	--	--
REGIONAL TOTALS	133	3.33	--	--	32	0.67	--	--	--	--	--	--
STATE TOTALS	36	1.21	43	1.68	83	2.69	95	2.15	143	5.19	29	1.26

SNOWSHOE HARE

Harvest

Results of the 1991 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 1991 season compared to 1990 and the 16-year average follow:

	1991	Percent change from 1990	Percent change from Average
Snowshoe hare hunters	3,427	-16	-33
Snowshoe hares harvested	4,731	-38	-56
Hunter-days afield	11,742	+8	-22
Snowshoes per hunter-day	0.40	-43	-39
Snowshoes per hunter	1.38	-25	-29

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. However, use of a color print insert would be better.

Results of the 1991 harvest questionnaire indicates a 43 percent decrease in hunter success compared to 1990. Success was below the 16-year average, even though hunters spent 8 percent more time afield in 1991.

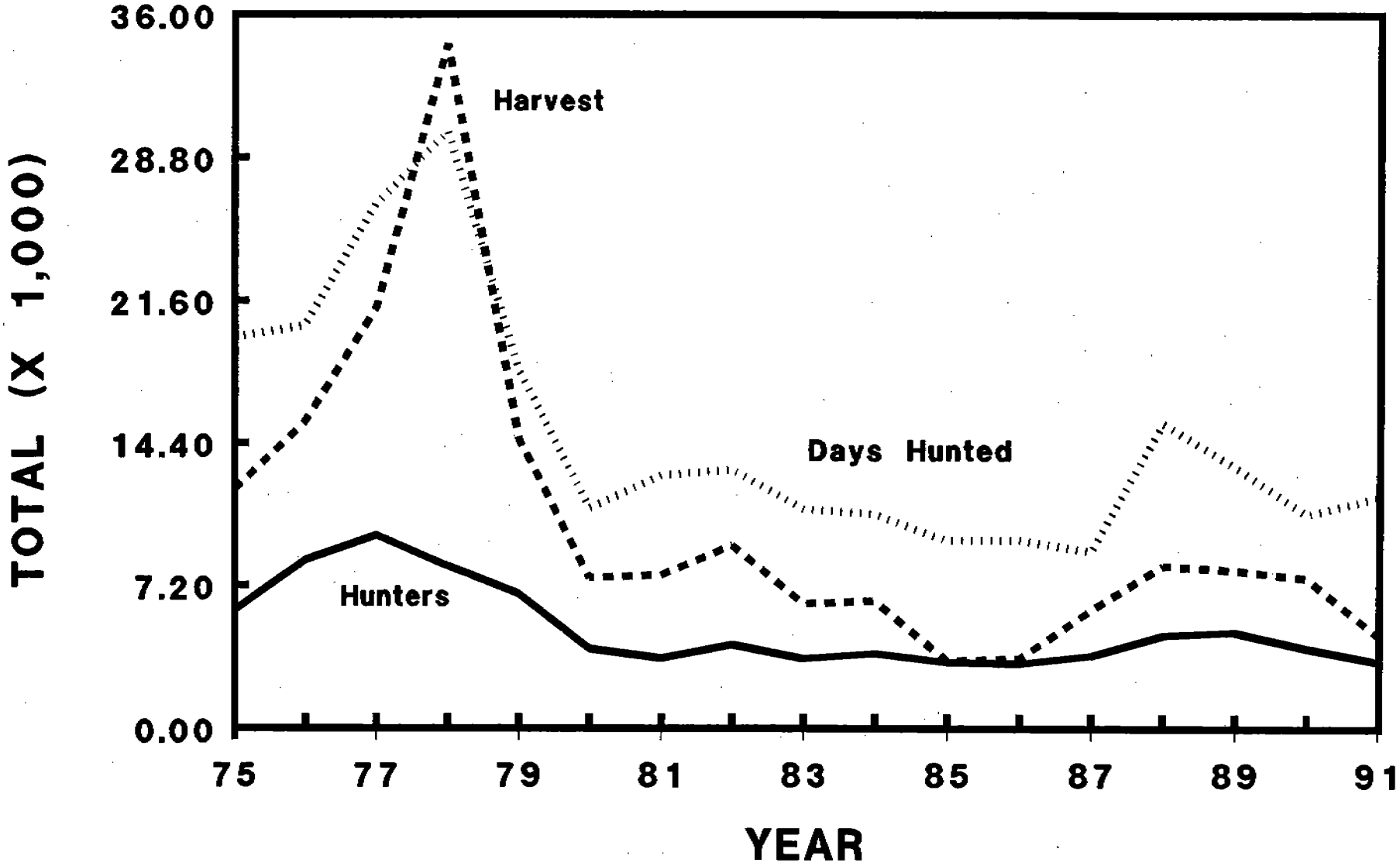


Figure 1. Statewide trends of snowshoe hare harvest statistics, 1975-91.

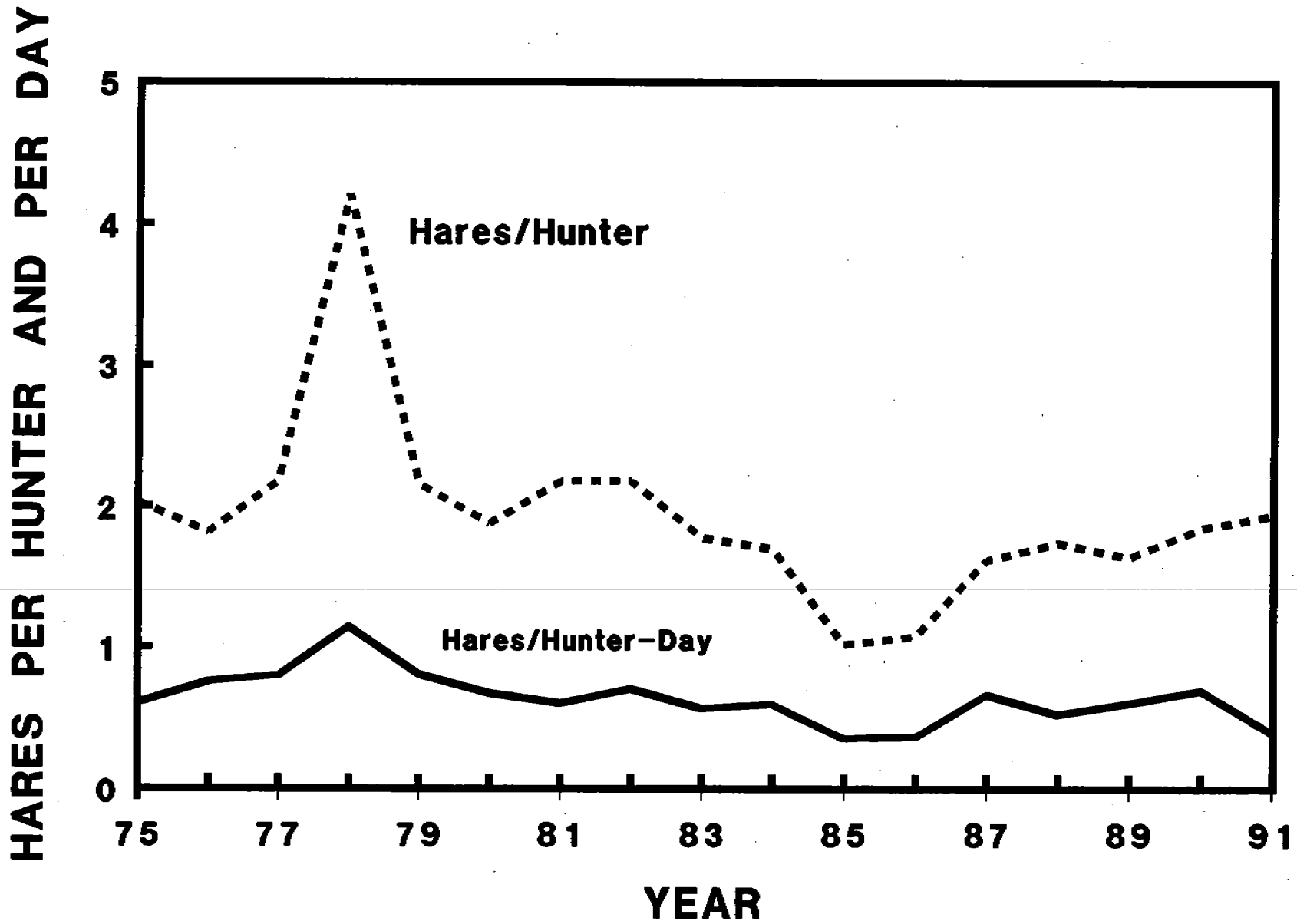


Figure 2. Statewide trends of snowshoe hare hunter success rates, 1975-91.

Table 11. Summary of snowshoe hare hunter success and distribution of harvest and hunting pressure by region and county, 1991.

REGION AND COUNTY	SAMPLE SIZE*	HUNTER-DAYS AFIELD	SNOWSHOES BAGGED	SNOWSHOES PER HUNTER-DAY	% OF PRESSURE	% OF HARVEST
NORTHERN REGION						
BOX ELDER	21	835	313	0.38	7.11	6.62
CACHE	15	748	226	0.30	6.37	4.78
DAVIS	2	539	17	0.03	4.59	0.37
MORGAN	3	104	226	2.17	0.89	4.78
RICH	18	730	956	1.31	6.22	20.22
SUMMIT	17	869	208	0.24	7.41	4.41
WEBER	4	347	86	0.25	2.96	1.84
REGIONAL TOTALS	80	4,175	2,035	0.49	35.56	43.02
CENTRAL REGION						
JUAB	3	139	69	0.50	1.19	1.47
SALT LAKE	2	156	34	0.22	1.33	0.74
SANPETE	16	695	539	0.78	5.93	11.40
TOOELE	16	1,200	417	0.35	10.22	8.83
UTAH	14	365	260	0.71	3.11	5.52
WASATCH	19	782	173	0.22	6.67	3.68
REGIONAL TOTALS	70	3,340	1,496	0.45	28.45	31.62
SOUTHERN REGION						
BEAVER	1	34	0	0.00	0.30	0.00
GARFIELD	2	52	52	1.00	0.44	1.10
IRON	0	0	0	0.00	0.00	0.00
KANE	1	17	0	0.00	0.15	0.00
MILLARD	0	0	0	0.00	0.00	0.00
PIUTE	1	34	0	0.00	0.30	0.00
SEVIER	14	800	487	0.61	6.82	10.30
WASHINGTON	0	0	0	0.00	0.00	0.00
WAYNE	4	156	69	0.44	1.33	1.47
REGIONAL TOTALS	23	1,095	608	0.56	9.33	12.87
NORTHEASTERN REGION						
DAGGETT	5	382	52	0.14	3.26	1.10
DUCHESNE	9	1,617	295	0.18	13.78	6.25
UINTAH	11	608	86	0.14	5.19	1.84
REGIONAL TOTAL	25	2,609	434	0.17	22.22	9.19
SOUTHEASTERN REGION						
CARBON	7	330	69	0.21	2.81	1.47
EMERY	7	191	86	0.45	1.63	1.84
GRAND	0	0	0	0.00	0.00	0.00
SAN JUAN	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	14	521	156	0.30	4.44	3.31
UNKNOWN	0	0	0	0.00	0.00	0.00
STATE TOTALS	212	11,742	4,731	0.40	100.00	100.00

*Total hunter trips from questionnaire returns.

Table 12. Summary of snowshoe hare bagged per hunter-day by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	2.93	0.14	0.38	0.35	0.78	0.33	0.54	0.38
Cache	1.27	0.75	0.00	1.67	0.21	1.10	0.56	0.30
Davis	0.29	0.11	0.50	0.25	0.40	1.50	0.00	0.03
Morgan	0.14	0.00	0.03	0.00	0.67	0.36	0.80	2.17
Rich	0.58	0.06	0.56	1.27	0.33	0.51	0.76	1.31
Summit	0.61	0.63	0.29	0.50	0.36	0.73	1.05	0.24
Weber	0.31	0.17	1.00	0.38	0.25	0.50	0.25	0.25
REGIONAL TOTALS	1.30	0.33	0.29	0.76	0.40	0.63	0.70	0.49
Central Region								
Juab	0.33	0.00	1.44	0.00	0.17	0.00	0.53	0.50
Salt Lake	0.23	0.17	0.30	0.00	0.48	0.38	0.00	0.22
Sanpete	0.80	0.23	0.30	0.57	0.68	0.64	1.08	0.78
Tooele	0.68	0.24	0.21	0.75	0.28	0.77	0.32	0.35
Utah	0.71	0.64	0.53	0.39	0.44	0.37	0.51	0.71
Wasatch	0.44	0.32	0.68	0.56	0.77	1.00	0.17	0.22
REGIONAL TOTALS	0.55	0.33	0.54	0.48	0.50	0.65	0.55	0.45
Southern Region								
Beaver	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00
Garfield	0.00	0.40	0.11	0.00	0.00	0.35	0.67	1.00
Iron	3.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
Kane	0.00	0.75	0.00	0.00	0.00	0.00	0.00	0.00
Millard	0.00	0.00	1.00	2.80	1.20	1.00	0.00	0.00
Piute	0.20	0.00	0.00	0.00	3.00	0.64	0.43	0.00
Sevier	0.00	0.25	0.63	0.60	0.75	0.55	0.96	0.61
Washington	0.00	0.50	0.00	0.00	2.00	0.00	0.00	0.00
Wayne	1.22	1.00	0.38	1.14	0.00	0.50	0.39	0.44
REGIONAL TOTALS	0.65	0.46	0.45	0.88	0.47	0.50	0.62	0.56
Northeastern Region								
Daggett	0.33	1.00	0.50	1.00	1.96	1.00	0.50	0.14
Duchesne	0.43	0.30	0.41	0.65	0.63	0.54	1.33	0.18
Uintah	0.20	0.49	0.13	1.31	0.89	0.23	0.88	0.14
REGIONAL TOTALS	0.30	0.41	0.28	0.91	1.02	0.40	1.17	0.17
Southeastern Region								
Carbon	0.13	0.29	0.09	1.00	0.46	1.00	0.71	0.21
Emery	0.19	0.67	0.13	0.57	0.94	0.54	0.37	0.45
Grand	0.00	0.00	0.75	0.00	0.00	0.00	2.00	0.00
San Juan	2.00	0.00	1.00	5.00	1.00	1.67	0.00	0.00
REGIONAL TOTALS	0.17	0.37	0.16	0.81	0.83	0.77	0.56	0.30
Unknown counties	0.00	0.00	0.00	0.40	0.42	0.00	0.00	0.00
STATE TOTALS	0.60	0.36	0.37	0.67	0.53	0.61	0.70	0.40

Table 13. Percentage distribution of snowshoe hare harvest by region and county, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	36.79	3.12	3.49	3.26	14.80	3.11	10.57	6.62
Cache	4.40	3.73	0.00	10.20	4.86	11.40	5.15	4.78
Davis	0.62	1.87	0.58	0.40	1.21	0.78	0.00	0.37
Morgan	0.31	0.00	0.58	0.00	0.40	1.04	1.08	4.78
Rich	2.20	0.61	5.80	7.75	3.24	7.77	14.09	20.22
Summit	7.85	24.99	6.98	4.89	6.08	4.15	11.11	4.41
Weber	1.25	1.22	5.23	1.22	1.82	1.30	0.27	1.84
REGIONAL TOTALS	53.46	35.61	22.67	27.75	32.45	29.54	42.28	43.02
Central Region								
Juab	0.62	0.00	13.37	0.00	0.81	0.00	2.71	1.47
Salt Lake	0.93	0.61	1.74	0.00	2.43	0.78	0.00	0.74
Sanpete	1.25	1.87	5.80	6.93	10.14	9.33	7.05	11.40
Tooele	4.07	5.60	3.49	4.89	3.24	8.55	3.25	8.83
Utah	6.91	9.97	14.53	8.57	6.89	3.89	4.88	5.52
Wasatch	5.02	3.73	14.53	8.16	8.31	6.22	0.27	3.68
REGIONAL TOTALS	18.87	21.87	53.49	28.57	31.84	28.76	18.16	31.62
Southern Region								
Beaver	0.00	0.00	0.00	0.00	0.00	0.00	0.27	0.00
Garfield	0.00	1.22	0.58	0.00	0.00	1.81	1.08	1.10
Iron	0.93	1.22	0.00	0.00	0.00	0.00	0.00	0.00
Kane	0.00	1.87	0.00	0.00	0.00	0.00	0.00	0.00
Millard	0.00	0.00	2.33	5.71	1.21	1.55	0.00	0.00
Piute	0.31	0.00	0.00	0.00	1.21	1.81	0.81	0.00
Sevier	0.00	1.22	2.91	2.44	1.82	2.85	7.05	10.30
Washington	0.00	2.48	0.00	0.00	0.40	0.00	0.00	0.00
Wayne	6.91	2.48	1.74	3.26	0.00	4.66	3.25	1.47
REGIONAL TOTALS	8.16	10.62	7.56	11.42	4.66	2.69	12.47	12.87
Northeastern Region								
Daggett	0.31	3.12	0.58	0.81	9.53	0.26	0.54	1.10
Duchesne	8.16	9.97	6.98	6.93	6.28	6.74	16.26	6.25
Uintah	5.34	11.87	2.33	8.57	5.07	2.33	3.79	1.84
REGIONAL TOTALS	13.83	24.99	9.88	16.32	20.89	9.33	20.60	9.19
Southeastern Region								
Carbon	3.45	4.37	2.33	5.71	1.21	10.88	2.71	1.47
Emery	0.93	2.48	1.16	6.53	6.49	7.51	2.71	1.84
Grand	0.00	0.00	1.74	0.00	0.00	0.00	1.08	0.00
San Juan	1.25	0.00	1.16	2.04	1.41	1.30	0.00	0.00
REGIONAL TOTALS	5.65	6.85	6.40	14.28	9.12	19.69	6.50	3.31
Unknown counties	0.00	0.00	0.00	1.63	1.01	0.00	0.00	0.00
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, 1984-91.

Region and County	Year 1984	1985	1986	1987	1988	1989	1990	1991
Northern Region								
Box Elder	7.49	8.34	3.46	6.30	10.16	5.64	13.69	7.11
Cache	2.06	1.80	2.81	4.10	12.64	6.27	6.46	6.37
Davis	1.31	6.09	0.43	1.09	1.62	0.31	0.19	4.59
Morgan	1.31	2.25	7.78	0.27	0.32	1.72	0.95	0.89
Rich	2.24	3.60	3.89	4.10	5.18	9.25	12.93	6.22
Summit	7.68	14.22	8.86	6.57	9.08	3.45	7.41	7.41
Weber	2.43	2.71	1.94	2.19	3.89	1.57	0.76	2.96
REGIONAL TOTALS	24.53	39.05	29.16	24.65	42.91	28.21	42.40	35.56
Central Region								
Juab	1.12	1.13	3.46	0.54	2.59	0.00	3.61	1.19
Salt Lake	2.43	1.35	2.16	2.19	2.70	1.25	0.00	1.33
Sanpete	0.93	2.93	7.13	8.21	8.00	8.78	4.56	5.93
Tooele	3.55	8.34	6.05	4.38	6.27	6.74	7.03	10.22
Utah	5.80	5.64	10.15	14.79	8.43	6.43	6.65	3.11
Wasatch	6.73	4.29	7.99	9.86	5.72	3.76	1.14	6.67
REGIONAL TOTALS	20.60	23.70	36.93	40.00	33.72	26.96	23.00	28.45
Southern Region								
Beaver	1.31	0.00	0.00	0.00	1.83	0.63	0.38	0.30
Garfield	0.18	1.13	1.94	0.27	0.10	3.13	1.14	0.44
Iron	0.18	0.90	0.00	2.19	0.00	0.00	0.00	0.00
Kane	0.00	0.90	0.00	0.00	0.00	0.00	0.00	0.15
Millard	0.18	0.90	0.86	1.36	0.54	0.94	0.19	0.00
Piute	0.93	0.00	0.00	0.27	0.21	1.72	1.33	0.30
Sevier	1.31	1.80	1.73	2.73	1.29	3.13	5.13	6.82
Washington	0.00	1.80	0.00	0.00	0.10	0.16	0.00	0.00
Wayne	3.37	0.90	1.73	1.91	1.18	5.64	5.89	1.33
REGIONAL TOTALS	7.49	8.34	6.26	8.76	5.29	15.36	14.07	9.33
Northeastern Region								
Daggett	0.55	1.13	0.43	0.54	2.59	0.16	0.76	3.26
Duchesne	11.42	12.19	6.26	7.12	5.29	7.52	8.56	13.78
Uintah	15.73	8.80	6.48	4.38	3.02	6.27	3.04	5.19
REGIONAL TOTALS	27.71	22.12	13.17	12.04	10.91	13.95	12.36	22.22
Southeastern Region								
Carbon	16.10	5.41	9.94	3.83	1.40	6.58	2.66	2.81
Emery	2.99	1.35	3.24	7.67	3.67	8.46	5.13	1.63
Grand	0.18	0.00	0.86	0.00	0.00	0.00	0.38	0.00
San Juan	0.37	0.00	0.43	0.27	0.75	0.47	0.00	0.00
REGIONAL TOTALS	19.66	6.76	14.47	11.78	5.83	15.52	8.17	4.44
Unknown counties	0.00	0.00	0.00	2.73	1.29	0.00	0.00	0.00
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, 1975-91.

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
Totals (1975-91)	85,880	176,886	253,091	–	–
Averages (1975-90)	5,153	10,760	15,084	0.66	1.94

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 1990-91 winter weather was relatively mild in terms of precipitation and in terms of cold temperature. Below average precipitation fell between December 1990 and February 1990. December 1990 through January 1991 temperatures were well below average. March and May precipitation was above normal, while April, June and July precipitation was below normal across the state.

Overall, temperatures remained below average April through June, while precipitation averages stayed mostly normal.

Table 1. Comparison of 1991 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	26.9	32.7	38.7	47.0	56.5	65.7	74.4	72.0	62.4	50.5	37.2	28.4
1991	21.8	35.4	39.0	45.4	53.6	64.7	75.2	74.0	62.4	50.7	36.6	24.3
Departure (degrees)	-5.1	2.7	0.3	-1.6	-2.9	-1.0	0.8	2.0	0.0	0.2	-0.6	-4.1
No.2 Dixie												
Normal	38.7	43.9	48.8	56.4	65.4	75.2	82.0	79.7	72.6	61.5	47.8	39.8
1991	38.5	50.7	45.9	55.9	63.0	73.2	82.9	81.1	74.5	64.0	47.5	40.2
Departure (degrees)	-0.2	6.8	-2.9	-0.5	-2.4	-2.0	0.9	1.4	1.9	2.5	-0.3	0.4
No.3 North Central												
Normal	27.0	31.9	38.6	47.4	57.1	65.9	74.6	72.2	63.1	51.3	38.0	28.9
1991	22.3	34.1	40.4	45.8	53.7	65.6	75.7	74.8	62.7	51.8	37.2	26.4
Departure (degrees)	-4.7	2.2	1.8	-1.6	-3.4	-0.3	1.1	2.6	-0.4	0.5	-0.8	-2.5
No.4 South Central												
Normal	27.0	31.6	38.6	44.9	54.0	63.1	70.4	68.0	60.2	49.8	37.1	28.8
1991	23.0	35.4	36.3	43.2	51.0	62.0	71.1	69.0	60.4	50.4	36.0	27.9
Departure (degrees)	-4.0	3.8	-2.3	-1.7	-3.0	-1.1	0.7	1.0	0.2	0.6	-1.1	-0.9
No.5 Northern Mountains												
Normal	21.2	24.7	30.6	40.0	49.6	57.6	65.3	63.1	55.0	44.9	32.0	23.6
1991	18.2	28.6	32.0	38.3	48.5	58.6	66.2	65.8	55.9	45.3	31.7	22.2
Departure (degrees)	-3.0	3.9	1.4	-1.7	-1.1	1.0	0.9	2.7	0.9	0.4	-0.3	-1.4
No.6 Uintah Basin												
Normal	17.2	24.1	35.5	46.2	56.2	64.9	72.1	69.3	60.3	48.5	33.5	21.2
1991	10.5	24.9	37.4	45.1	55.7	64.9	71.4	70.4	61.0	49.1	32.3	21.1
Departure (degrees)	-6.7	0.8	1.9	-1.1	-0.5	0.0	-0.7	1.1	0.7	0.6	-1.2	-0.1
No.7 Southeast												
Normal	27.0	33.8	41.0	50.2	59.8	69.7	76.6	73.8	65.4	53.7	39.5	29.3
1991	21.8	34.9	40.5	48.6	59.1	69.6	76.5	75.1	66.3	55.5	37.8	27.6
Departure (degrees)	-5.2	1.1	-0.5	-1.6	-0.7	-0.1	-0.1	1.3	0.9	1.8	-1.7	-1.7
STATE AVERAGES												
Normal	26.4	31.8	38.6	47.4	56.9	66.0	73.6	71.2	62.7	51.5	37.9	28.6
1991	22.3	34.9	38.8	46.0	54.9	65.5	74.1	72.9	63.3	52.4	37.0	27.1
Departure (degrees)	-4.1	3.1	0.2	-1.4	-2.0	-0.5	0.5	1.7	0.6	0.9	-0.9	-1.5

Table 2. Comparison of 1991 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	0.59	0.57	0.74	0.81	0.91	0.67	0.63	0.72	0.55	0.65	0.62	0.54
1991	0.48	0.24	0.52	0.91	1.86	0.76	0.35	0.82	0.93	1.13	0.84	0.38
Departure (inches)	-0.11	-0.33	-0.22	0.10	0.95	0.09	-0.28	0.10	0.38	0.48	0.22	-0.16
No.2 Dixie												
Normal	1.35	1.36	1.42	0.82	0.66	0.36	0.78	1.01	0.76	0.78	0.99	0.96
1991	0.81	0.60	3.03	0.09	0.27	0.28	0.41	0.61	1.65	1.03	0.72	0.85
Departure (inches)	-0.54	-0.76	1.61	-0.73	-0.39	-0.08	-0.37	-0.40	0.89	0.25	-0.27	-0.11
No.3 North Central												
Normal	1.56	1.39	1.6	1.96	1.6	1.19	0.65	0.95	0.99	1.31	1.34	1.41
1991	1.08	0.86	1.55	2.48	3.05	0.97	0.33	1.24	2.18	2.08	2.31	0.67
Departure (inches)	-0.48	-0.53	-0.05	0.52	1.45	-0.22	-0.32	0.29	1.19	0.77	0.97	-0.74
No.4 South Central												
Normal	1.09	1.06	1.15	1.04	0.94	0.54	0.96	1.31	1.00	0.92	0.98	0.97
1991	0.66	0.41	1.52	0.77	1.44	0.36	0.56	1.59	1.42	1.26	1.20	0.50
Departure (inches)	-0.43	-0.65	0.37	-0.27	0.50	-0.18	-0.40	0.28	0.42	0.34	0.22	-0.47
No.5 Northern Mountains												
Normal	2.16	1.92	1.89	1.88	1.54	1.17	0.88	1.23	1.15	1.45	1.62	1.98
1991	1.15	0.73	2.24	2.22	2.53	1.36	0.63	1.77	2.23	1.97	2.41	0.48
Departure (inches)	-1.01	-1.19	0.35	0.34	0.99	0.19	-0.25	0.54	1.08	0.52	0.79	-1.50
No.6 Uintah Basin												
Normal	0.51	0.45	0.57	0.68	0.78	0.72	0.58	0.81	0.71	0.87	0.54	0.61
1991	0.20	0.17	0.62	0.79	0.59	0.69	0.54	0.85	1.05	0.68	0.49	0.25
Departure (inches)	-0.31	-0.28	0.05	0.11	-0.19	-0.03	-0.04	0.04	0.34	-0.19	-0.05	-0.36
No.7 Southeast												
Normal	0.72	0.61	0.64	0.61	0.67	0.40	0.77	1.05	0.78	1.09	0.73	0.74
1991	0.76	0.19	1.13	0.19	0.41	0.31	0.76	1.07	1.44	1.00	1.19	0.92
Departure (inches)	0.04	-0.42	0.49	-0.42	-0.26	-0.09	-0.01	0.02	0.66	-0.09	0.46	0.18
STATE AVERAGES												
Normal	1.14	1.05	1.14	1.11	1.01	0.72	0.75	1.01	0.85	1.01	0.97	1.03
1991	0.7	0.5	1.5	1.1	1.5	0.7	0.5	1.1	1.6	1.3	1.3	0.6
Departure (inches)	-0.41	-0.59	0.38	-0.05	0.44	-0.04	-0.24	0.13	0.71	0.30	0.34	-0.45

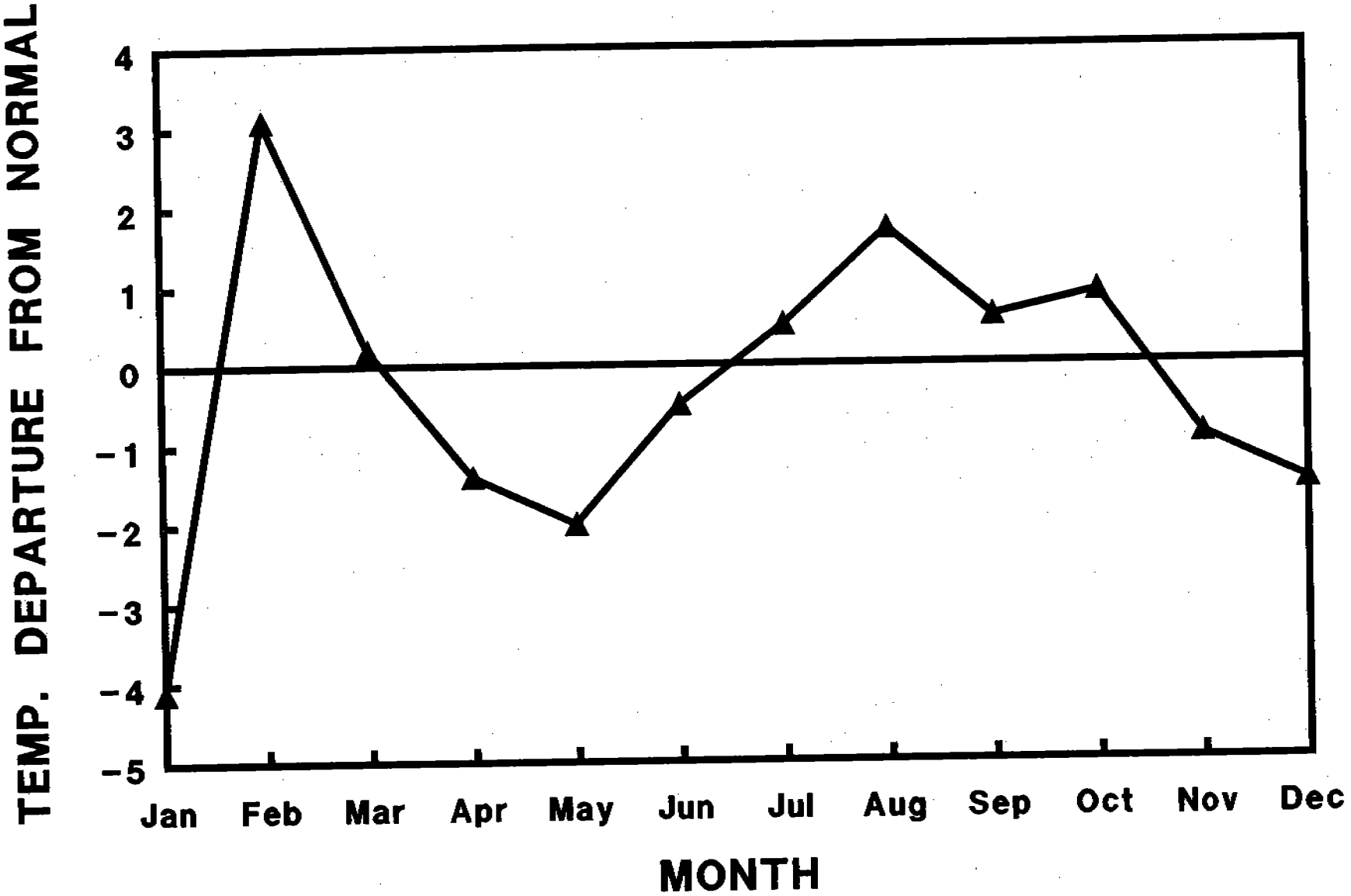


Figure 1. Monthly average temperature departure from normal (degrees F), 1991.

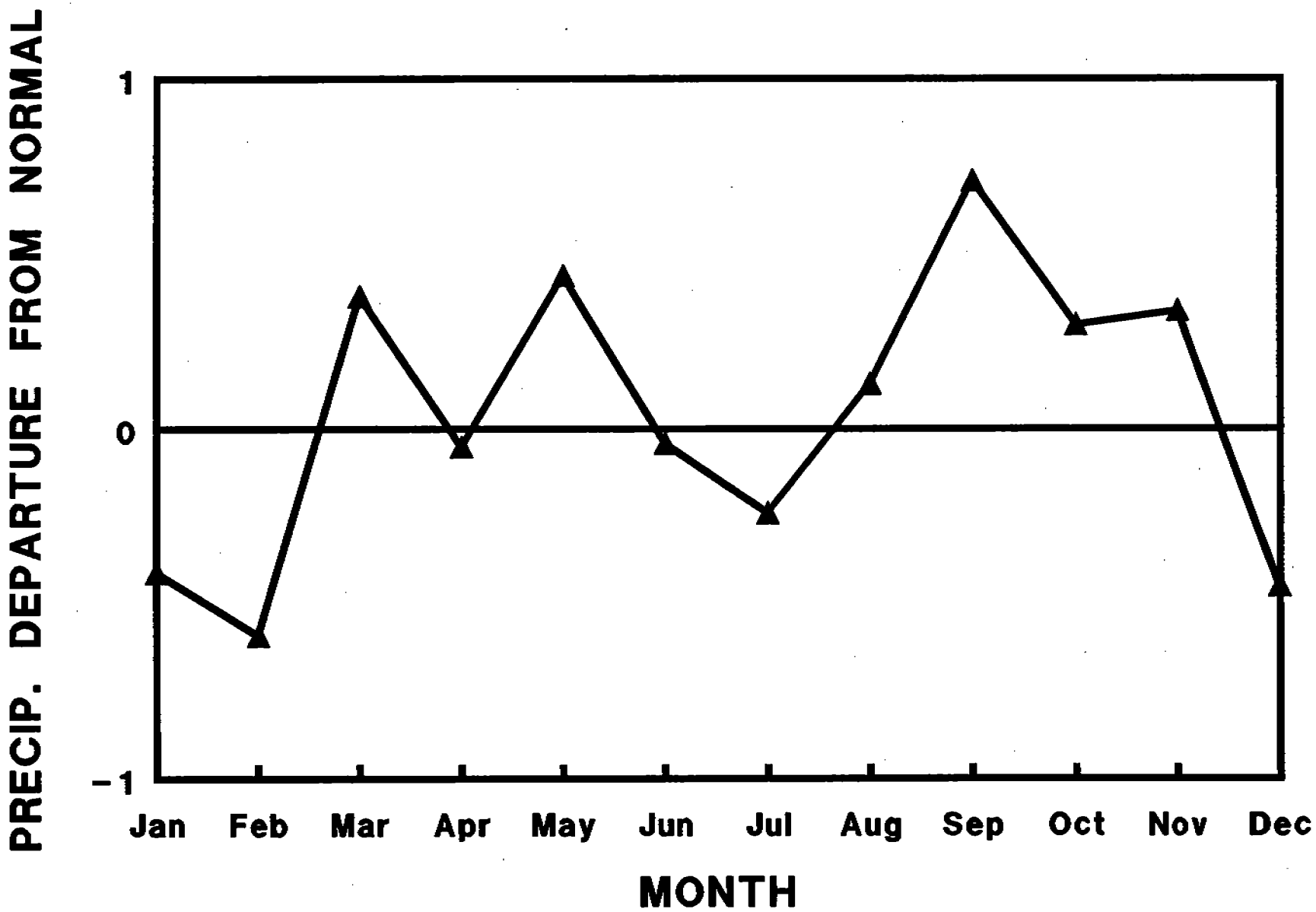


Figure 2. Monthly average precipitation departure from normal (inches), 1991.

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, except resident combination decreased slightly in 1991.

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. By 2000, we project that only about 6 percent will be hunting 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, 1954-91.

	Adult Res. Small Game		Juv. Res. Small Game		Non Res. Small Game		Combination License	
Year	Issued	Cost	Issued	Cost	Issued	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

Table 2. Actual (1971-1991) and projected (1995 and 2000) proportion of Utah population hunting small game based upon assumption of improved sportsman access to private lands and successful transplants of turkey, chukar and Hungarian partridge on public lands.

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
1995a	1,879,301	105,000	5.6
2000a	1,992,048	115,000	5.8

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, 1971-91 (JSG=juvenile small game, RSG=adult resident small game, CMB=combination license, NRSG=nonresident small game).

	License Fees				Number of Licences Sold				No. Federal Duck Stamps	Total Gross Revenues Attributed to Small Game ($)				
Year	JSG	RSG	CMB	NRSG	JSG4	RSG	CMB	NRSG	Sold3	JSG4	RSG	CMB2	NRSG	TOTAL1
1971	2.50	4.50	10.00	20.00	16,044	20,681	102,284	1,000	37,588	20,055	93,064	200,557	20,000	313,676
1972	2.50	4.50	10.00	20.00	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	20.00	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	20.00	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	20.00	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	20.00	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	20.00	15,795	36,473	74,600	1,270	40,319	23,692	218,838	176,204	25,400	418,734
1978	3.00	6.00	18.00	20.00	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	20.00	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	30.00	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	30.00	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	30.00	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	30.00	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	30.00	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	40.00	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	40.00	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	40.00	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	40.00	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	40.00	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	40.00	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	40.00	5,626	23,276	79,165	1,212	18,770	16,878	279,312	563,485	48,480	859,675

1 Value does not include cougar, bear, turkey permits and commercial hunting area licenses. It does not include NRSG 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 fee plus the resident big game license fee plus the resident small game license fee or $9.33 for 1991.

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.

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 Fair Standards and Labor 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, 1971-91.

	REGION											
	Northern		Central		Southern		Northeastern		Southeastern		STATE TOTALS	
Species	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours
Pheasant												
1971	507	--	878	--	796	--	588	--	346	--	3,115	--
1972	469	--	963	--	752	--	535	--	297	--	3,016	--
1973	322	--	691	--	740	--	488	--	230	--	2,471	--
1974	479	--	819	--	848	--	508	--	317	--	2,971	--
1975	490	--	846	--	993	--	515	--	393	--	3,237	--
1976	476	--	822	--	773	--	434	--	400	--	2,905	--
1977	484	--	731	--	790	--	554	--	343	--	2,902	--
1978	479	--	642	--	654	--	512	--	588	--	2,875	--
1979	438	--	642	--	721	--	562	--	209	--	2,572	--
1980	358	--	672	--	750	--	546	--	270	--	2,596	--
1981	459	--	525	--	801	--	535	--	330	--	2,650	--
1982	437	--	639	--	583	--	477	--	332	--	2,468	--
1983	260	--	442	--	780	--	426	--	330	--	2,238	--
1984	444	--	359	--	473	--	463	--	166	--	1,905	--
1985	383	--	303	--	650	--	492	--	180	--	2,008	--
1986	455	--	617	--	669	--	520	--	270	--	2,531	--
1987	432	--	518	--	574	--	546	--	90	--	2,160	--
1988	334	--	436	--	604	--	469	--	90	--	1,933	--
1989	499	--	427	--	45	--	403	--	90	--	1,464	--
1990	518	--	509	--	97	--	240	--	90	--	1,454	--
1991	485	--	496	--	120	--	375	--	90	--	1,566	--
Chukar												
1971	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	58	5,081	386
1973	1,063	119	1,494	167	72	10	705	48	702	68	4,036	412
1974	125	31	1,591	107	564	43	440	30	1,115	67	3,835	278
1975	188	30	808	85	892	41	908	88	786	55	3,582	299
1976	875	75	964	110	465	32	727	67	687	66	3,718	350
1977	405	50	1,198	120	601	37	600	71	429	44	3,233	322
1978	359	28	459	42	135	14	315	23	536	52	1,804	159
1979	546	54	793	76	415	22	293	23	267	14	2,314	189
1980	283	68	1,668	124	235	12	0	0	53	10	2,239	214
1981	330	56	591	49	147	11	245	21	260	32	2	169
1982	473	34	571	56	475	35	260	37	101	9	1,880	171
1983	17	15	190	17	20	2	488	44	103	7	818	85
1984	654	81	303	32	--	--	--	--	118	16	1,075	129
1985	236	73	453	36	--	--	--	--	174	12	863	121
1986	394	65	432	37	--	--	135	14	--	--	961	116
1987	813	119	398	36	0	3	305	32	175	23	1,691	213
1988	379	35	457	49	60	7	--	--	180	14	1,076	105
1989	105	17	505	30	11	8	--	--	144	12	765	67
1990	--	21	1,190	77	--	--	85	8	235	20	1,510	126
1991	0	0	311	18	0	0	0	0	225	11	536	29

Table 1 (continued)

	REGION											
	Northern		Central		Southern		Northeastern		Southeastern		STATE TOTALS	
Species	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	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	287
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			1,087	357
1991	--	178	536	54	30	2	0	0	--	2	566	236

Table 1 (continued)

	REGION											
	Northern		Central		Southern		Northeastern		Southeastern		STATE TOTALS	
Species	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
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	--	--	--	--	--	--	--	41

Table 1 (continued)

	REGION											
	Northern		Central		Southern		Northeastern		Southeastern		STATE TOTALS	
Species	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	1,007	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	25	83
Cottontail Rabbit												
1971	338	--	330	--	1,054	--	410	--	570	--	2,702	--
1972	510	--	279	--	939	--	360	--	555	--	2,643	--
1973	337	--	242	--	879	--	270	--	270	--	1,998	--
1974	270	--	180	--	1,040	--	370	--	542	--	2,402	--
1975	330	--	231	--	1,237	--	340	--	712	--	2,850	--
1976	510	--	260	--	1,382	--	300	--	636	--	3,088	--
1977	360	--	262	--	1,329	--	400	--	556	--	2,907	--
1978	382	--	264	--	1,038	--	300	--	761	--	2,745	--
1979	270	--	270	--	903	--	400	--	580	--	2,423	--
1980	90	--	265	--	655	--	359	--	540	--	1,909	--
1981	270	--	270	--	903	--	400	--	580	--	2,423	--
1982	240	--	240	--	722	--	298	--	602	--	2,102	--
1983	90	--	90	--	822	--	340	--	590	--	1,932	--
1984	--	--	--	--	177	--	356	--	340	--	196	--
1985	--	--	--	--	175	--	631	--	400	--	450	--
1986	240	--	148	--	534	--	358	--	330	--	1,610	--
1987	150	--	120	--	669	--	373	--	240	--	1,552	--
1988	--	--	--	--	129	--	604	--	379	--	360	--
1989	90	--	66	--	90	--	266	--	360	--	872	--
1990	150	--	62	--	97	--	210	--	360	--	879	--
1991	90	--	33		--	--	105	--	330	--	558	--

APPENDIX D: Season dates, bag limits and areas open by upland game species, 1991.

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
Pheasant	Nov. 2-15	2 cocks	4 cocks	Statewide.
	Nov. 2-Dec. 1	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.
Mourning Dove	Sept. 2-30	10	20	Statewide (except lands closed under CLOSED AREAS).
Band-Tailed Pigeon	Sept. 2-30	5	10	Beaver, Garfield, Grand, Iron, Kane, Millard, Piute, San Juan, Sanpete, Sevier, Utah, Washington and Wayne counties.
Chukar	Sept.14-Nov. 30	5	10	Cache, Morgan, Rich, Sanpete, Summit, Wasatch, and Weber counties and portions of the following counties lying east of Interstate 15: Box Elder, Juab, Millard, Salt Lake, and Utah; those parts of Duchesne and Uintah counties south of Highway SR-40 and west of Highway SR-88 and the Book Cliffs Seep Ridge Road; and that part of Sevier County north of Interstate 70 from Salina to Cove Fort.
	Sept. 14, 1991- Jan. 31, 1992	5	10	Beaver, Carbon, Emery, Garfield, Grand, Iron, Kane, Piute, San Juan, Tooele, Washington and Wayne counties; those parts of Box Elder, Juab, Millard, Salt Lake, and Utah counties lying west of I-15; and that part of Sevier County south of Interstate 70 from Salina to Cove Fort.

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
Sage Grouse	Sept. 14-22	3	6	Piute and Wayne counties; and that part of Garfield County beginning at the Garfield-Piute county line and Highway SR-22; then southerly on SR-22 to Antimony Creek; easterly along this creek and across the Griffin Top to the junction of the Escalante-Bicknell road; northerly on this road to the Garfield-Wayne county line; westerly along this county line to the Garfield-Piute county line; westerly along this county line to SR-22; and that part of Sevier County south and west of Interstate 70 and US-89.
	Sept. 14-22	2	4	Beaver, Carbon, Daggett, Grand, Iron, Kane, Rich and Uintah counties; those parts of Utah and Duchesne counties beginning near Soldier Summit at the Utah-Wasatch county line; 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; and Garfield County except that part listed in Season Dates (A)(1) of this proclamation.
Forest Grouse	Sept. 14- Nov. 30	4 (aggregate)	8 (aggregate)	Statewide.

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
Quail	Nov. 2-15	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. 2-Dec. 31	5	10	Washington County.
Hungarian Partridge	Sept. 14-Nov. 30	5	10	Cache, Davis, Morgan, Rich, Summit, and Weber counties; and that portion of Box Elder County east of Interstate 15.
	Sept. 14-Jan. 31, 1992	5	10	Tooele County and that part of Box Elder County west of Interstate 15.
Wild Turkey General Season	May 1-24	Season Limit 1 Male Turkey		Kane and Wayne counties; that part of Grand County south of the Dolores and Colorado rivers; that part of San Juan County beginning at the LaSal Junction of Highway SR-46 and US-191; then easterly on SR-46 to the Lisbon Valley Road; southeasterly on this road to the Island Mesa Road; easterly on this road to the state line; north along this state line to the Grand-San Juan county line; westerly along this county line to its intersection with US-191; southerly on US-191 to the LaSal Junction and SR-46; and those parts of Iron and Washington counties east of Interstate 15. All of Garfield County except the Tropic area described in (L) WILD TURKEY (LIMITED ENTRY SEASON)(permit required) below.
Wild Turkey Limited Entry Season	April 11-26	Season Limit 1 Male Turkey 5 Permits Available		**Tropic**-Boundary begins at the junction of Bryce Canyon National Park and

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
		in Each Area		the Kane-Garfield county line; then east along this county line to a point 3.0 miles east of the road to Kodachrome Basin directly south of Henrieville; directly north to Henrieville and Highway SR-12; northeasterly on SR-12 to the Dixie National Forest boundary; west along this forest boundary to the Bryce Canyon National Park boundary; southeasterly along this boundary to the Kane-Garfield county line. **New Harmony**-Boundary begins at Cedar City and Highway SR-56; then westerly on SR-56 to Pinto Junction; southwesterly on the Pinto Road to Page Ranch; southeasterly on the Page Ranch-Pace Draw-New Harmony road to New Harmony and Ash Creek; southwesterly up this creek to the summit 2.0 miles west of Mount Baldy; south from the summit to Leap creek; southeasterly along this creek to Interstate 15; northerly on I-15 to Cedar City and the Junction of SR-56. **Marysvale**-Boundary begins at Deer Creek and Highway SR-89; then southwesterly along Deer Creek to Gold Mountain and to Mount Belknap and the Beaver-Piute county line; southeasterly along this county line to Mount Holly; easterly to Gold Gulch and the Gold Gulch Road; easterly on this road to SR-89; northerly on SR-89 to Marysvale and the Deer Creek Road. **Pine Valley (west)**-Boundary begins at Page Ranch and Pinto Road; then southwesterly on this road to Highway

APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
				SR-18; south on SR-18 to St. George and the junction with Interstate 15; northeasterly on I-15 to Leap Creek; northwesterly along this creek to the summit 2.0 miles west of Mount Baldy; north from the summit to Ash Creek; northeasterly along this creek to New Harmony; northwesterly up pace Draw on the New Harmony to Page Ranch Road to Page Ranch and the junction with the Pinto Road.
Ptarmigan	Sept. 8-Oct. 16	4	8	Daggett, Duchesne, Summit and Uintah counties.
Cottontail Rabbit	Sept. 14, 1991-Feb. 29, 1992	10	20	Statewide.
Snowshoe Hare	Sept. 14, 1991-Feb. 29, 1992	5	10	Statewide.

APPENDIX E. Summary of upland game harvest questionnaire returns, 1962-91.

Year	Questionnaires Mailed	Total Returns	Percent	Useable Returns	Percent	Licensees Who 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