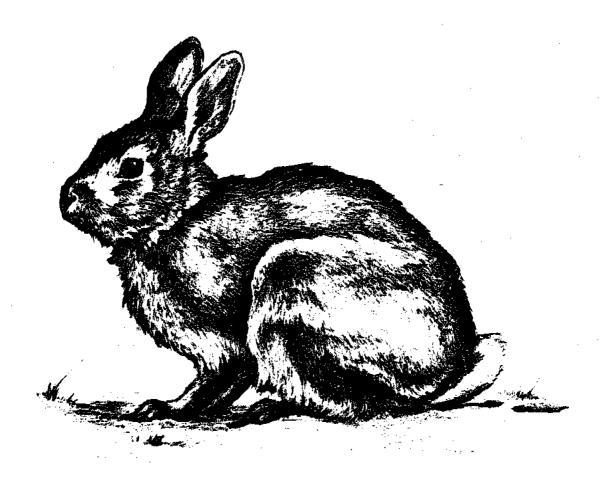
# DESK COPY Utah Upland Game Annual Report 1988



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UPLAND GAME

Annual Report

1988

Prepared by:

Jay A. Roberson Upland Game Coordinator

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Annual Performance Report for Federal Aid Project W-65-R-35 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

### TABLE OF CONTENTS

	age
Abstract	1
Objectives	1
Procedures	1
Recommendations	2
Introduction	3
Pheasants	9
Migratory Upland Game Birds	
Mourning Dove	32
Band-tailed Pigeon	50
Chukar Partridge	53
Sage Grouse	72
Forest Grouse	99
Quail	125
Hungarian Partridge	141
Wild Turkey	157
Sharp-tailed Grouse	173
White-tailed Ptarmigan	175
Rabbits and Hares	181
Cottontail Rabbit	182
Snowshoe Hare	197
Appendix A: Weather Conditions	204
Appendix B: License Sales	207
Appendix C: DWR Summer Survey Effort	211
Appendix D: Season Dates, Bag Limits, Areas Open - 1988	216
Appendix E: Summary Harvest Questionnaire Returns	219

#### JOB PERFORMANCE REPORT

# RESEARCH PROJECT SEGMENT (Inventory)

State: <u>UTAH</u> Project Title: <u>Statewide Wildlife</u>

Management Inventory

Project No.: <u>W-65-R-35</u>

Job Title: <u>Statewide Upland Game</u>

Job No.: A-4 Inventory and Management

Period Covered: December 15, 1986 to April 30, 1988

Abstract: This report includes upland game inventory and harvest data

relating to the 1988-89 hunting seasons. Results of annual

inventory and harvest surveys and long-term trends of

indices derived by each method are included. Data obtained

in 1988 are compared to 1987 and long-term averages.

Objectives: To conduct annual inventories and determine the population

trend and annual harvest of upland game.

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, 1987 through February 10, 1988, 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 23-August 18 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 Hungarian partridge, forest grouse (ruffed and blue), sage grouse, sharp-tailed grouse, wild turkey and quail from June 15-August 26. 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 1987 for comparable grounds were determined on a county basis.

The Gambel's quail call count route in Washington County was discontinued in 1980. Long period waterhole counts were completed in July and August.

Cottontail rabbit roadside counts were conducted over preestablished routes between July 15 and August 5. Indices derived include rabbits per mile and young per 100 adults.

Harvest questionnaires were used to determine the harvest of upland game birds, cottontail rabbit, snowshoe hare, and wild turkey. A 14.2 percent sample of eligible licensees from the current year's (1988) resident small game license file and 1988 combination license file was selected for the game bird and rabbit and hare questionnaire. Separate questionnaires were mailed to all 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 analyzed by the Division of Wildlife Resources information systems services subsection. Due to accumulated rounding errors associated with transferring data from the printout, some columns may not total exactly. Wild turkey and ptarmigan questionnaires were analyzed separately by Game Management personnel.

Field bag checks of upland game hunters were made primarily at checking stations, with additional random field checks 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.

In 1988 a computerized pull apart mailer was again used to obtain harvest data. However, a modification was made in the questionnaire this year. Small prints and descriptions of upland game were added to the questionnaire to help hunters to distinguish species when hunting. This was done for "look-alike" species - Black-tailed jackrabbit, white-tailed jackrabbit, cottontail, snowshoe hare, ruffed grouse, blue grouse, sharp-tailed grouse, and sage grouse. Data input and storage was entered on tape. This method was initiated in 1981.

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 eighteenth 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 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 hunted 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 1988, a total of 70,142 Utah sportsmen spent 499,621 days afield in pursuit of various upland game species (Table 1). The harvest of upland game totaled 548,416 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 of each species in Table 3. The regulations for 1988 upland game hunting seasons are shown in Appendix D.



Table 1. Summary of harvest statistics from the mail questionnaire for 1988.

	Hunters	Total	Hunter	Bag per	Bag/Hunter
Species	Afield	Harvest	Days	Hunter-day	For Season
Pheasant	54,514	97,658	184,180	0.53	1.79
Mourning dove	22,457	178,469	76,219	2.34	7.95
Chukar partridge	11,237	32,057	40,088	0.80	2.85
Sage grouse	8,499	14,692	19,418	0.76	1.73
Forest grouse	16,947	53,562	51,726	1.04	3.16
Quail	2,671	8,849	8,682	1.02	3.31
Hungarian partridge	2,471	4,424	5,392	0.82	1.79
Wild turkey	421	66	1,267	0.05	0.16
Band-tailed pigeon	29		·		
Sharp-tailed grouse	0	0	0		
Ptarmigan	15	22	15	1.47	1.47
Cottontail	24,076	150,386	97,190	1.55	6.25
Snowshoe	4,725	8,231	15,444	0.53	1.74
TOTAL		548,416	499,621		

Total hunters afield for all species of upland game = 70,142

#### 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 15,350 upland game bird questionnaires, a 14.2 percent sample, were mailed. Of the total, 648 (4.2%) questionnaires were undeliverable. Of the 14,702 questionnaires delivered, 6,527 (44%) usable upland game questionnaires were returned. Of those, 2,326 purchased a license but did not hunt upland game. By dividing the total of 108,077 eligible licensees by the usable returns (6,527), a projection factor of 16.696585 is derived.

The 1988 hunter questionnaire sample size increased from 1987, and 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.

Number and percent of total upland game hunters afield who reported hunting each game species during 1982-88. Fable 2.

		N	Number of Hunters	Hunters				6.		Pa	Percent of Intal	Total			
Species	1982	1983	1984	1985	1986	1987	1988	1989	1982	1983	1984	1985	1986	1987	1988
Pheasant	85.368	77.847	76.840	69,889	59 987	57,118	54 514		87.4	0	0 98	6 90		c c	     
Chukar	11,326	10,418	9,846	7 930	9 397	11 276	11 237			. I		7.00	2.4.6	5 .	1.11
Mourning dove	31,756	28.258	30,573	28 183	26 583	22 553	22 AE7		32.0	 		ָּהָ סִיּ	13.5	رن د. د	0.0
Sage grouse	8 997	9 201	20,00	7 586	7 233	7 060	00V a		5. d	31.15	0.4		5.75	, 55 ,	32.0
Forest arouse	12 384	13,414	11 511	12,75	12 117	000,7	664,0		۶. د د د د د د	7.0.5	ب 4. د	ب 4. م	7.01	4. 6	12.1
Oueil	4 368	1 2		2,045	2 432	00,40	146,01		7.7		2 .	0.0 0.0	0'/	8.12	24.2
		1	ָר ס ס	000	454.1	6,043	1,0,2		ņ. #	1 1	4	بر ب	4.	3.7	3.8
Hungarian															
partridge	2,590	2,889	1,523	1,157	1,257	2,010	2,471		2.7	3.2	1.7	7.	2	0 6	ر ب
Wild turkey***	23	118*			335	347	421		0.02	0	6.0	· ~		. c	
Sharp-tailed											•	)	?	?	?
grouse**	ł	ļ	ļ	ł	1	ł	ł		ł	1	;				
Band-tailed													İ	I I	ł
pigeon**	51	ł	ł	;	1	1	53		0.1	ł	ł	0.1	1		G
Ptarmigan**	19	£	20	7	14	6	15		0.02	0.01	0.05	0.02	0.02	[0 0	0.0
Cottontail											  -  -	3	2		5
rabbit	26,714	22,467	18,616	18,616 14,059	13,992	20,322	24,076		27.3	24.8	21.1	17.3	19.6	8 60	34.3
Snowshoe hare	4,245	3,544	3,796	3,365	3,277	3,702	4,725		4.3	3.9	4.3	4.1	4.6	5.4	6.7
T0TAL															
HUNTERS***	97,705	90,592		88,431 81,119 71	71,259	68,174	70,142								

\*Includes both spring and fall hunts.

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

\*\*\*Note: 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, 1961-88.

Secondary   Seco		Ì				,					•	2000 0000	200	2	rolest arouse	use		Quail			Sun	
B49         Trips         %         B49         B49 <th></th> <th></th> <th>Hunt.</th> <th></th> <th>0</th> <th>Hunt.</th> <th></th>			Hunt.		0	Hunt.		0	Hunt.		0	Hunt.		0	Hunt.		0	Hunt.		0	Hunt.	
714         3,204         22         51         583         9         318         539         59                        105         318         53         48         117         362         41	Year	Вад	Trips	3-5	Bag	Trips	26	Bag	Trips		Bag	Trips	34	Bag	Trips	3-2	Вад	Trips	24	Bag	Trips	2-2
500         2,685         19         39         456         9         147         362         41         —         9         10         3         3         10         9         10         3         2         3         10         9         9         10         2         2         2         10         4	1961	714	3,204	22	51	583	Q	318	539	59	1	}	1	1	1	1	109	383	28	72	123	29
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	1962	200	2,685	9	39	456	σ	147	362	4	1	}	1	ł	1	1	62	201	31	36	108	33
1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1, 1,	1963	795	3,317	54	53	169	∞	248	550	45	220	468	47	188	281	29	7	305	23	29	177	33
1, 16    4, 109   29	1964	116	3,115	59	9	681	σ	566	568	47	45	154	59	144	229	ೞ	8	316	30	62	150	4
2.42         4.53         2.5         1.66         1.3         4.5         1.3         4.5         1.66         2.4         1.3         3.3         4.0         1.06         3.15         3.1         3.1         4.2         4.2         1.8         4.6         2.5         4.4         4.7         4.6         5.2         1.3         4.7         6.6         2.7         4.0         1.0         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         3.1         4.0         3.1         4.0         4.0         3.1         4.0         4.0         3.1         4.0         4.0         3.1         4.0         4.0         3.1         4.0         4.0         3.1         4.0         4.0         3.1         3.1         4.0         4.0         3.1         3.1         4.0         4.0         3.1         3.1         4.0         4.0         3.1         3.1         4.0         4.0         3.2         3.2         3.0         4.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3.0         3	1965	1,165	4,009	29	1		1	486	851	21	82	168	49	225	311	72	128	371	34	93	233	8
,353         4,833         28         1,319         12         477         915         52         134         475         41         161         424         38         116         315           ,425         5,223         3,223         3,233         36         26         36         37         166         37         173         48         273         466         37         173         48         273         466         37         173         48         273         466         37         173         34         273         466         37         173         44         273         466         37         173         46         37         273         666         37         173         46         37         273         666         37         173         46         37         273         46         37         273         46         37         37         37         47         37         37         47         37         47         37         47         37         47         40         47         37         47         40         40         40         40         40         40         40         40         40         40	. 9961	1,242	4,297	29	136	1,067	33	423	881	48	24	131	4	133	331	40	106	315	34	63	219	53
442         5,23         27         236         1,312         18         495         1,005         45         185         449         41         177         665         27         171         465         34         28         1,035         16         1,036         46         1,036         46         1,036         46         1,036         47         1,256         16         31         40         31         40         10         20         34         20         246         406         36         24         1,273         31         40         10         20         31         40         10         20         31         40         10         20         31         40         10         20         31         40         10         20         31         31         31         31         40         10         20         31         31         31         40         40         31         20         31         40         40         31         40         40         40         31         40         40         32         30         40         40         30         40         32         40         40         40         40         40<	•	1,353	4,833	28	153	1,319	12	477	915	52	138	566	25	194	475	4	191	424	38	116	315	37
897         5,335         36         214         1,566         14         647         1,260         52         241         648         37         273         646         42         182         465         392         43         203         66         31         16         46         962         48         257         603         43         203         133         11         15         49         50         234         66         31         16         46         962         48         257         603         43         203         66         31         16         46         962         34         203         66         31         16         47         17         40         41         87         20         20         15         40         82         50         66         31         17         40         41         82         50         66         31         41         82         50         196         46         962         50         44         27         109         32         100         32         48         101         20         224         48         20         100         32         100         32         100	•	1,422	5,223	27	236	1,312	∞_	495	1,095	45	185	449	4	177	999	23	171	457	37	132	347	38
5,546         4,686         33         193         1,274         15         466         962         48         257         603         43         209         666         31         126         314         40         101         210           7,83         5,049         35         1,049         35         1,049         33         162         385         42         87         20           7,84         6,69         36         1,333         16         464         994         50         224         625         37         273         149         32         18         31         41         90         224         620         33         16         30         20         224         62         34         220         160         40         31         40         10         20         224         40         20         224         20         224         20         224         32         16         40	•	1,897	5,335	36	214	1,568	7	647	1,250	25	241	648	37	273	646	45	182	465	39	148	292	ខ
7.78         5.049         35         210         1,333         16         464         934         50         234         625         37         223         673         33         162         386         42         70         224           7,43         4,617         38         270         1,421         19         437         629         529         44         271         794         34         154         38         45         170         456         38         44         271         794         34         149         34         159         170         460         226         529         529         1,09         32         126         33         47         90         224         50         226         688         44         388         1,259         14         90         14         32         1,264         17         40         47         40         177         40         47         19         70         19         40         177         40         47         19         70         19         40         18         40         10         19         70         40         40         10         40         10         40 <td></td> <td>1,546</td> <td>4,686</td> <td>33</td> <td>193</td> <td>1,274</td> <td>5</td> <td>466</td> <td>962</td> <td>48</td> <td>257</td> <td>603</td> <td>43</td> <td>509</td> <td>999</td> <td>31</td> <td>126</td> <td>314</td> <td>40</td> <td>10</td> <td>210</td> <td>48</td>		1,546	4,686	33	193	1,274	5	466	962	48	257	603	43	509	999	31	126	314	40	10	210	48
7,743         4,617         38         2,70         1,421         19         457         827         5.55         44         271         794         34         154         339         45         224           6,654         4,659         35         20         1,556         13         414         824         50         226         553         41         329         1,619         32         1,89         311         41         97         196           1,659         3,523         4,699         35         2,626         668         44         329         1,619         32         186         1,729         31         1,719         40         781         52         259         783         33         117         40         781         52         259         783         33         117         40         781         52         259         1,388         38         126         284         1,389         38         126         289         1,389         38         126         289         1,389         38         1,919         37         141         40         171         40         40         171         40         40         171         40 <td></td> <td>1,783</td> <td>5,049</td> <td>35</td> <td>210</td> <td>1,333</td> <td>16</td> <td>464</td> <td>934</td> <td>쫎</td> <td>234</td> <td>625</td> <td>37</td> <td>223</td> <td>673</td> <td>33</td> <td>162</td> <td>385</td> <td>42</td> <td>87</td> <td>210</td> <td>4</td>		1,783	5,049	35	210	1,333	16	464	934	쫎	234	625	37	223	673	33	162	385	42	87	210	4
,659         35         209         1,596         13         414         824         50         226         553         41         329         1,699         32         1,299         31         41         956         14         329         1,099         32         1,299         31         1,799         40         42         532         44         329         1,554         13         1,951         17         406         44         329         2,564         44         329         1,526         13         33         17         406         44         329         4,284         40         17         406         44         17         40         17         406         44         17         40         17         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         77         40         70         71         40         70         40         70		1,743	4,617	38	270	1,421	19	457	827	22	259	593	4	172	794	34	154	339	45	120	224	72
7,347         5,323         44         323         1,951         17         511         955         54         292         668         44         388         1,259         31         157         333         47         108         227           1,472         5,604         44         329         2,554         13         607         1,105         55         374         901         42         535         1,354         40         177         406         44         120         206         44         10         42         535         1,354         40         177         406         40         783         33         371         1,131         33         105         266         39         371         1,131         33         105         266         39         301         823         371         1,191         305         34         201         406         40         1,215         33         30         40         40         40         1,215         33         30         40         40         40         1,215         30         30         30         30         30         30         30         30         30         30         30         3		1,659	4,699	35	209	1,596	13	414	824	55	226	553	4	329	1,019	32	128	311	41	97	196	49
44         529         2,554         13         607         1,105         55         374         901         42         535         1,354         40         177         406         44         120         220           739         4,294         40         273         1,709         16         408         781         52         259         783         371         1,313         33         105         266         39         87         184           ,874         5,175         36         295         1,967         15         511         943         54         397         972         41         528         1,388         38         125         299         42         106         247         300         44         97         41         30         40         47         40         77         40         40         47         40         77         40 <td></td> <td>2,347</td> <td>5,323</td> <td>44</td> <td>323</td> <td>1,951</td> <td>1</td> <td>511</td> <td>955</td> <td>54</td> <td>292</td> <td>999</td> <td>4</td> <td>388</td> <td>1,259</td> <td>31</td> <td>157</td> <td>333</td> <td>47</td> <td>108</td> <td>227</td> <td>48</td>		2,347	5,323	44	323	1,951	1	511	955	54	292	999	4	388	1,259	31	157	333	47	108	227	48
7.39         4,294         40         273         1,739         6,294         40         781         52         259         783         371         1,131         33         105         266         39         87         184           384         5,175         36         295         1,967         15         511         943         54         397         972         41         528         1,388         38         125         299         42         106         247           222         7,024         32         248         1,150         46         400         1,215         33         585         1,691         30         30         34         20         403         32         419         30         30         34         30         40         30         40 <td></td> <td>2,472</td> <td>5,604</td> <td>4</td> <td>329</td> <td>2,554</td> <td>3</td> <td>607</td> <td>1,105</td> <td>22</td> <td>374</td> <td>901</td> <td>45</td> <td>535</td> <td>1,354</td> <td>40</td> <td>177</td> <td>406</td> <td>44</td> <td>121</td> <td>220</td> <td>52</td>		2,472	5,604	4	329	2,554	3	607	1,105	22	374	901	45	535	1,354	40	177	406	44	121	220	52
,874         5,175         36         295         1,967         15         511         943         54         397         972         41         528         1,388         38         125         299         42         106         247           ,507         4,858         31         279         1,986         14         343         882         39         301         853         35         419         1,419         30         103         306         34         85         246         240         1,215         33         585         1,691         35         190         403         32         246         400         1,215         33         585         1,691         35         190         403         32         348         249         400         1,215         33         585         1,691         35         190         403         37         29         40         400         1,218         39         30         40         400         1,215         33         585         1,691         35         40         40         1,283         39         87         29         44         42         501         1,283         39         87         40		1,739	4,294	40	273	1,709	91	408	781	25	259	783	33	37.1	1,131	33	105	266	39	87	184	47
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,245         4,643         27         274         1,711         16         287         548         52         202         435         46         270         640         42         84         189         44         51         76           ,207         4,017         30         221         1,500         15         208         426         49         161         376         43         228         656         35         61         148         41         35         54           ,211         3,615         33         224         1,476         15         237         36         30         307         29         143         671         21         46         111         41         34         97           ,863         2,837         36         308         776         40         187         557         34         224         1,184         19         63         171         37         73         154           ,372         3,953         35         244         1,525         16         308         776         40         187         557         34         1,184         19         63         171         37         37	1983	,645	7,153	23	348	2,381	72	362	880	4	294	729	40	300	1,118	23	105	310	34	82	225	36
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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.

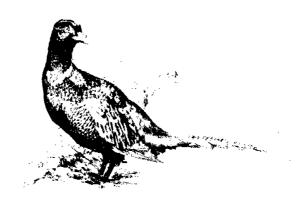
# RING-NECKED PHEASANT

## **SUMMARY**

Based on the 1987 harvest data, the 1988 statewide breeding population increased slightly from the previous year. The effect of the 1983-84 winter finally seemed to be wearing off even though emergent vegetation still had not returned to inundated mud flats around the Great Salt Lake. Winter carry-over from 1987 was good in northern and central Utah on what suitable habitat remained.

Weather conditions during the nesting season were good in 1988. Statewide monthly average temperatures were above normal, but average precipitation was also above normal across several climatic subdivisions in April. However, temperatures were above normal and precipitation below normal June through August. Drought conditions in northern Utah may have negatively influenced brood survival. Fewer pheasants were observed, and fewer hens appeared to have young. Overall, production was down.

Harvest statistics compiled from the questionnaire indicated reduced success compared to 1987. All harvest indices declined and were below average, resulting in the lowest recorded values since 1950. Opening weekend success was down compared to the previous year based upon field bag check data. Hunters did not react to reduced pheasant populations in a directly density dependent fashion. While they hunted fewer days or not at all, the reduction in hunters and days hunted was not in proportion to the reduction in harvest and the average number of hours hunted actually increased in 1987.



#### Winter Sex Ratio Counts

Results of the survey for the winter of 1987-88 and long-term trends are shown in Tables 1, 2 and Figure 2 of this section. Statewide comparisons to the winter of 1986-87 and the 10-year average are as follows:

	Winter of 	<u>Percent c.</u> 1986-87	hange from Average
Total pheasants counted (roadside)	2,586	+46	-50
Hens per cock	4.1	+11	+8
Pheasants observed per 100 hours	1,724	+61	+23
Total hours effort (roadside)	150	-38	-65

Winter sex ratio counts indicated a 61 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 11 percent from 1987 and was 8 percent higher than the long term average. Access was good but the lack of snow kept birds scattered and counting conditions were not as good as previous years. 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 1988 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 4. Summer 1988 survey results compared to 1987 and the previous 10-year average follow:

		<u>Percent</u>	change from
	<u>1988</u>	<u> 1987</u>	<u>Average</u>
Total pheasants observed	1,573	-34	-41
Total miles driven	1,933	-11	-19
Pheasants per mile	0.81	-26	-26
Average brood size	5.3	+4	0
Young per hen	3.68	-10	-10
Percent of hens with young	72	-17	<del>-</del> 5

December 1987 through February 1988 temperatures were below normal. Precipitation was at or below normal November 1987 through March 1988. April and November had above average precipitation. The rest of the year precipitation was at or below normal. Temperature and precipitation were normal during the critical month of May. The North Central and Uintah Basin climatic subdivisions (major pheasant distribution) had below normal precipitation in May, which should have increased nesting success. However, this below average precipitation continued through October, resulting in drought over the northern part of the state. Average temperatures in both subdivisions was well above average April through August. Brood survival may have declined due to hot, dry weather May through August.

Pheasant production appears to have decreased from 1987 in Western Utah. Production and hunter success were down in all areas except southeastern and northeastern Utah. The statewide density index (pheasants per mile) decreased from 1.10 in 1987 to 0.81 in 1988, and is 26 percent below the 10-year average (1.10).

Little emergent vegetation due to alkaline soils around the Great Salt Lake continued to reduce both the quantity and quality of wintering, nesting and brood rearing habitat in Box Elder, Salt Lake, Davis, and Weber counties.

#### <u>Harvest</u>

#### Hunter Questionnaire

Results of the hunter questionnaire for 1988 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, Figure 1 and total statewide harvest statistics in Table 13 and Figure 3. A comparison of 1988 harvest statistics to 1987 and the 40-year average follow:

	<u>1988</u>	Percent 1987	change from Average
Pheasant hunters	54,514	-5	-31
Pheasants harvested	97,650	-18	-55
Hunter-days afield	184,180	-8	-17
Pheasants per hunter-day	0.53	-12	-46
Pheasants per hunter	1.79	-14	-33

In northern Utah, hunters were told to expect poor hunting with success similar to 1987. Low breeding populations were noted and production was poor for those birds which made it through the winter. We predicted 55,000 hunters and 110,000 harvest.

Total hunters again decreased 5 percent from 1987 and remained below the long-term (1948-87) average. Total harvest decreased 18 percent from 1987. Hunter success (pheasants per hunter-day) decreased 12 percent from 1987. Pheasants per hunter also decreased 14 percent.

Long-term trends (1970-88) of total hunters, hunter-days, harvest and hunter success are shown in Figures 1 and 2. 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, and modern agricultural practices.

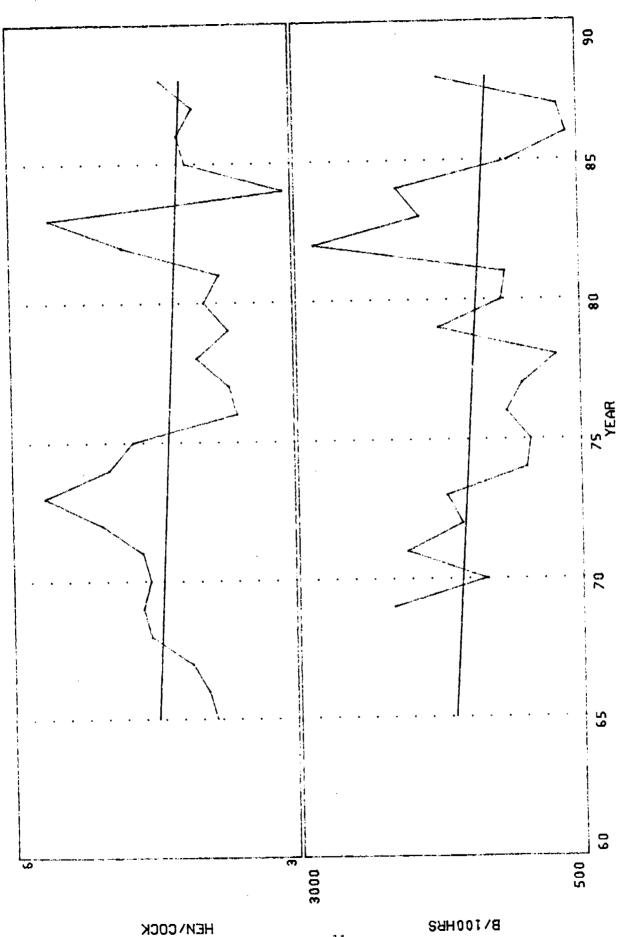


Figure 1. Pheasants winter sex ratio indices, 1965-88.

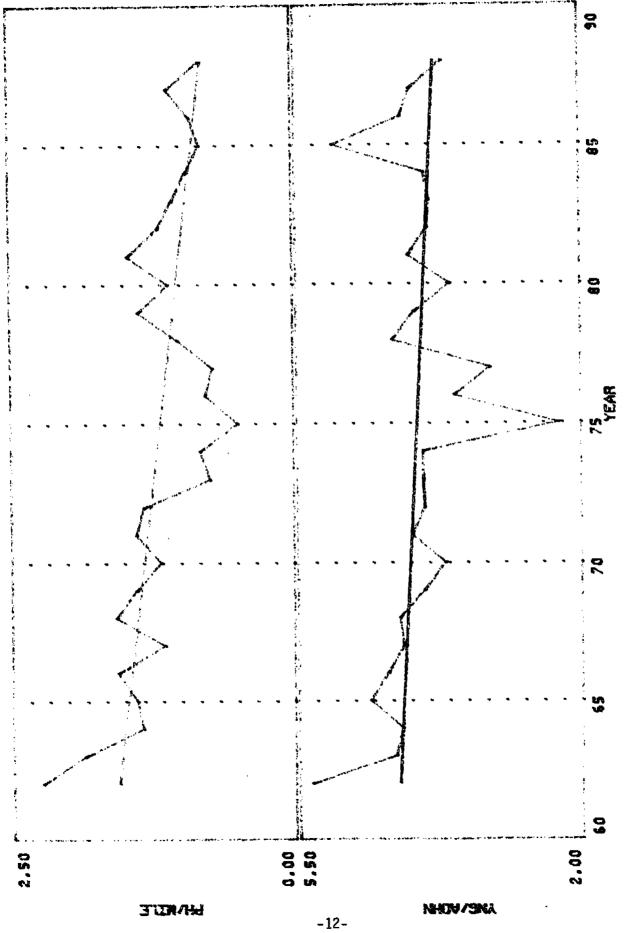
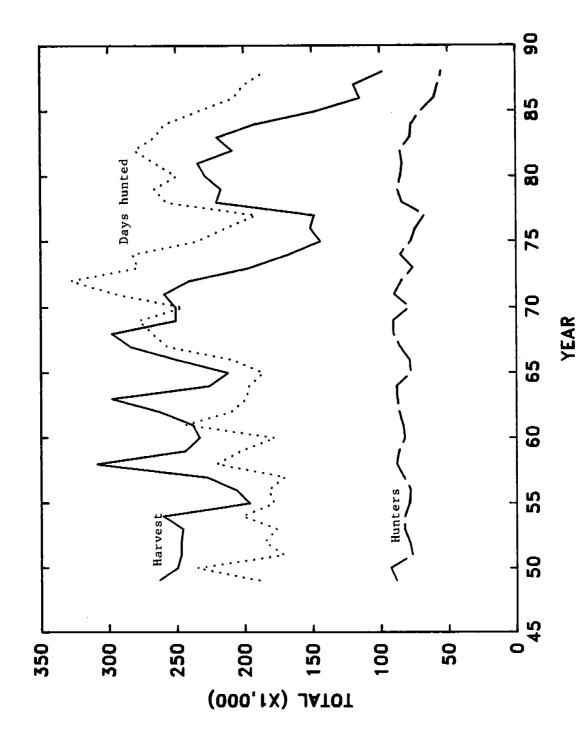


Figure 2. Statewide pheasant production indices, 1962-88.



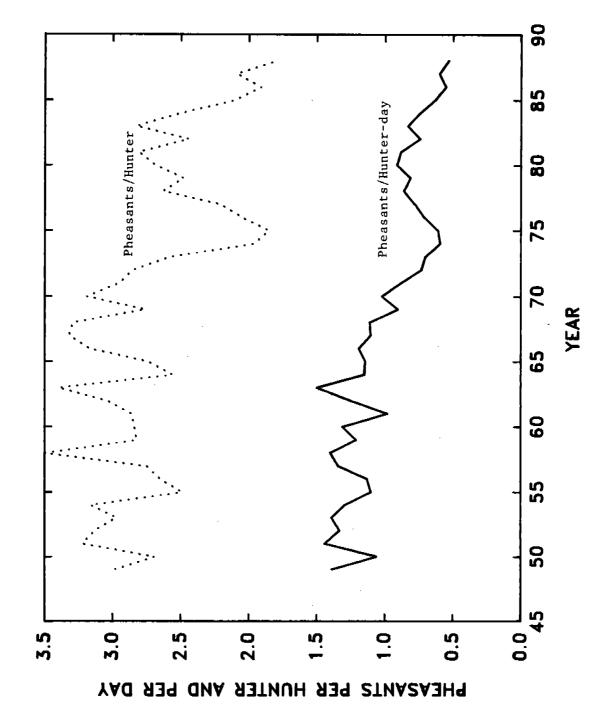


Figure 4. Statewide trend in pheasant hunter success rates, 1948-88.

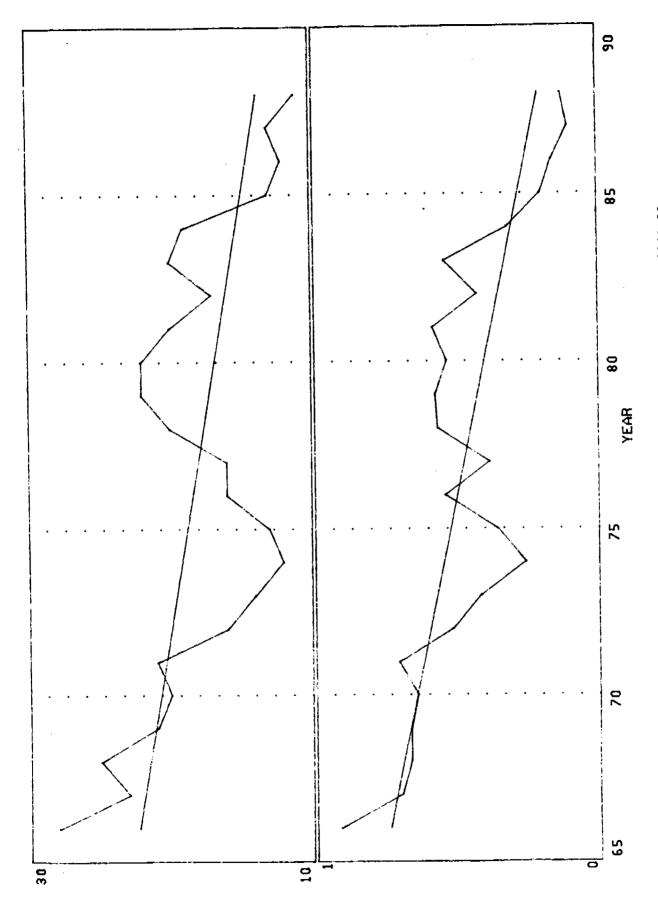


Figure 5. Statewide pheasant field bag check indices, 1962-88.

#### Field Bag Checks

A summary of pheasant field bag check data for 1988 is shown in Table 14. The hunter success trend determined via bag checks since 1983 is found in Table 15 and Figure 5. A comparison of 1988 data, on a statewide basis, to 1987 and the 10-year average follow:

	1988	Percent c	hange from Average
Total hunters checked	2,564	-1	-37
Total hours hunted .	7,328	+12	-43
Pheasants per hunter	•		
(complete hunts)	0.35	+9	-49
Pheasants bagged per 100 hours	11	-15	-37
Average hours per hunter-day			
(complete hunts)	3.1	+24	-18
Hours hunted per pheasant bagged (complete)	8.9	+14	+49

#### **Checking Station Report**

Rain fell throughout the northern pheasant areas in the state on November 2 and 3 in amounts ranging from a trace to 0.77 inches. Weather was generally fair over the State Saturday and Sunday (November 5 and 6, 1988). Sunny and fair weather prevailed over northern Utah on Saturday, and temperatures were in high 50's and low 60's.

Hunting pressure was down in Central and Northeastern Utah. Pressure was about the same in other areas of the State. This is attributed to decreasing pheasant populations and to less land being accessible to hunters. Statewide hunter success was about the same as 1987 on opening weekend but success over the entire season was down compared to the previous year. The pheasant season on Ute tribal trust lands opened on October 29th. The few hunters who were aware of this and took advantage of it had good hunting success. However, when the general season opened one week later, there were numerous complaints that the pheasants had "all been killed."

Table 1. Summary of pheasant winter sex ratio counts, 1987-88.

		Roadsi	ide Obs	de Observations	)ns	<u>u</u>	lushin	a Obse	Flushing Observations	Suc	Ē	Effort Expended	papua		Phose Ohe /
Region and				Hens/	Hens/ Cocks/				Hens/	ocks/	Vehicle	Hours of Effort	of Eft	Fart	100 Hours of
County	Cocks	Hens	Total	Cock	100 Hens		Cocks Hens Total	Total	Cock	100 Hens	Mi les		Ka] k	Total	Road, Obs.
Northern Region															
Box Elder	46	219	-		17	æ	<u>4</u>	17	4.7	12	130	=	0	=	2,409
Cache	37	158	195	4.3	23	1	1	!	1	ł	618	쟔	_	5	390
Davis	73	147	160	11.3	6	2	9	32	15.0	7	130	φ	4	01	2,667
Morgan	}	1	!	!	1	1	1	1	1	1	1	ł	ł	1	
Rich	}	1	!	[	ł	1	1	}	1	ł	1	ł	ļ	1	1
Summit	1	{	1		1	}	ł	1	ł	i	ļ	ł	ł	}	ł
Weber	1	¦	ł	1	1	1		1	1	1	l	1	;	1	ł
REGIONAL TOTALS	96	524	620	5.5	82	r.	4	49	8	=	878	13	ď	72	025
Central Region					!						8	Š	,	7	676
Juab	37	67	104	1.8	55	1	1	1	ì	1	53	_	0	7	1.486
Salt take	7	ĸ	7	2.5	8	1		1	}	ł	34	က	0	m	233
Sanpete	56	166	192	6.4	91	64	249	313	3.9	56	38	2	4	14	1,920
Tooele	}	}	1	1		ł	}	1	l	ł	ł	ł	ł	ł	
Utah	78	187	265	2.4	45	1		1	ŀ	I	75	2	0	2	2,650
Wasatch		1	1	1	ı			ł	ľ	1	1	-	1	1	1
REGIONAL TOTALS	143	425	568	3.0	34	64	249	313	3.9	26	200	30	4	34	1.893
Southern Region															
Beaver	}	ł	}	1	ŀ	1	1	1	J	;	1	1	ł	ł	1
Garfield	1	1	ł	!	ł	1	}	ł	1	ł	1	1	ł	1	ł
Iron	!	ł	1	ì	}	1	1	1	1	ŀ	ł	;	ł	1	ļ
Kane	1	1	1	1	ł	ł	!	1	1	1	1	1	1	ŀ	1
Millard	88	615	703	7.0	7	9	47	23	7.8	13	396	17	<del></del>	38	4,135
Piute	!	1	1	1	1	1	1	ł	1	ŀ	1	ł	1	1	ŀ
Sevier	6	355	446	3.9	56	ŀ	ł		1	1	247	70	0	20	2,230
Washington		ł	1	}	1	1	1	1	ł	1	l	ł	ì	}	ı
Wayne	1	1		1	<b>¦</b>	!			1		1	1	ł	1	-
REGIONAL TOTALS	179	970	1,149	5.4	18	9	47	23	7.8	13	643	37	-	38	3,105
Northeastern Region	디														
Daggett	1	}	1	}	I	1	I	1	1	ł	1	1	l	ŀ	}
Ouchesne	27	43	70	1.6	63	!	1	1	1	1	155	വ	0	Ŋ	1,400
Uintah	63	116	179	8	54	10	23	33	2.3	43	8	=	-	12	1.627
REGIONAL TOTALS	90	159	249	1.8	57	10	23	33	2.3	43	235	16	-	17	1,556
<u>Southeastern Region</u>	티														
Carbon	1	;	1	1	1	1		ŀ	1	ł	ł	ŀ	ł	ł	1
Emery	ł	ł	1	1	ł	ļ	1	1	1	ł	1	ł	ł	ľ	ŀ
Grand	ł	}	}	ł	ŀ	ł	1	1	1	1	ŀ	ł	1	1	!
San Juan	ł	1	1	1	1	1	1	1	-	ł	ŀ	1	1	}	ł
REGIONAL TOTALS	;	!	1	1	ł	l	ŀ	ł		-	!	1	;		1
STATE TOTALS	508 2	9,078	2,586	۲.	24	85	363	448	4.3	23	1.956	150	=	191	1 724
[ ] Estimate	ate												:		

Table 2. Trend of pheasant winter sex ratio counts, 1982-88.

	198	1982-83	198	1983-84	198	1984-85	198	1985-86	198	1986-87	198	1987-88	
Region and	Hens/	Birds/	Hens/	Birds/	Hens/	Birds/	Hens/	Birds/	Hens/	Birds/	Hens/	Birds/	Averages
County	Cock	100 Hr	Cock	100 Hr	Cock	100 Hr	Cock	100 Hr	Cock	100 Hr	Cock	100 Hr	1978–87
Northern Region													
Box Elder	3.7	8,400	I	}	4.2	3,074	2.4	1,453	5.8	524	4.8	2,409	
Cache	3.6	1,556	1	ł	5.7	3,133	17.2	585	8.9	168	4.3	330	
Davis	17.0	1,080	11.2	6,090	6.2	3,108	8.4	4,683	7.5	340	11.3	2,667	
Morgan	ŀ	1	ł		ł	1	1	}	1	ł	ł	}	
Rich	1	}	ł	1	1	. !	1	}	ł	ł	1	ł	
Summi t	1	}	ł	1	ł	1	ł	}	1	f	1	!	
Weber	6.0	700	1	ł	7.6	3,425	27.0	350	6.3	287	}	ł	
REGIONAL TOTALS	4.3	1,596	11.2	9,090	5.1	3,127	5.5	1,235		379	5.5	925	5.6 1.998
Central Region													
Juab	3.2	1,066	ì	l	1	ł	3.4	947	3.9	1,005	 89.	1.486	
Salt Lake	1.3	973	1	I	ł	ł	0.0	0	4.5	1	2.5	233	
Sanpete	7.7	4,328	!	1	1	-	0.0	0	6.1	3,900	6.4	1,920	
Tooele	3.2	267	1	1	ł	1	0.0	0	ł	1	ł	1	
Utah	3.2	1,608	1	i	1	ł	3.4	965	3.5	857	2.4	2,650	
Wasatch	1	1	1	1		1	1	1	1	1	ł	1	
REGIONAL TOTALS	6.3	2,668	1	1	1	I	3.4	928	3.8	1,057	3.0	1,893	4.6 1,587
Southern Region													
Beaver	5.3	543	2.7	433	ł	ł	1	ł	ļ	ļ	1	ľ	
Garfield	}	}	<b>!</b>	ł	1	I	1	1	1	1	ł	ł	
Iron	1	1	1	1	1	ŀ	1	1	1	1	ł	ł	
Kane	ł	1		1	1	1	1	1	ł	1	1	1	
Millard	3.7	831	3.2	5,525	}	:	1	1	3.4	4,270	7.0	4,135	
Piute	1	}	1	}	1	1	ł	1	1	ł	ł		
Sevier	6.7	1,936	2.2	3,620	3.2	2,667	1	1	9.6	509	3.9	2,230	
Washington	4.4	176	9.0	227	ł	!	ł	ł	ŀ	1	1	}	
Wayne	1	1	1	1	1	-	1	1	1	1	1	1	
REGIONAL TOTALS	5,1	1,121	5.6	2,009	3.2	2,667	+	1	3.7	2,943	5.4	3,105	3.3 1,615
Northeastern Region													
Daggett	1	1	}	<b>!</b>	}	1	1	1	1	1	ł	1	
Duchesne	1.5	223	1.7	1,113	4.	145	7.5	241	2.0	139	1.6	1,400	
Uintah	5.0	1,287	2.1	3,180	3.9	1,645	1.7	285	9.0	145	9.	1,627	
REGIONAL TOTALS	2.7	801	1.9	1,526	2.3	282	1.5	255	1.2	141	1.8	1,556	2.3 1,143
Southeastern Region			-	,	c	000	i.	e c					
cal bull	ļ		<u>:</u>	0.00	0.7	000,1	6.3	220	<b>!</b>	<b>!</b>	1	l	
Emery	ł	<b>!</b>	1.7	2,589	5.6	1,706	9.	161	1	}	ł	1	
Grand	¦	}	1	1	1	}	ŀ	1	1	ļ	ł	!	
San Juan	1	1	1	1	1	1	1	1	ŧ	1,	1	1	
REGIONAL TOTALS	.8	1,240	1.7	2,615	5.6	1,617	2.0	261	ŀ	1	1	}	1.9 1,503
STATE TOTALS	5.5	1,900	5.6	2,104	3.8	1,116	3.9	594	3.7	673	4.1	1,724	3.8 1,403

Table 3. Pheasant summer inventory, 1988.

Region and	No.	Total	Broods	spo	Observ.	bserv.	Young	- 1	Total	Total	Total	Total	Total Total Total Pheas/	Yng/	Mean	Yng/	% Hens
County	Routes Miles	Miles	<u>چ</u>		Hens	Yng	Cocks Hens		Hens	Yng	Cocks	Cocks Pheas	Mile			Ad Hens	
Northern Region																-	
Box Elder	-	8	9	23	ო	7	2	5	7.	3	Ŋ	20	.63	.39	8.8	2.21	64
Cache	2	162	m	12	0	2	-	m	9	4	_	21	.13	60.		2.33	23
Davis	-	35	9	4	0	∞	σ	_	7	48	σ	4	.70	.52		6.86	8
Morgan	ł	ł	}	ł	1	1	1	ł	ł	1	· }	, }	: 1		}	1	: 1
Rich	ł		ļ	1	1	1	ł	}	}	1	1	}	ł		!	ł	ł
Summit	1	1	ł	!		1	1		}	1	ł	ł	ł			ł	1
Weber	I	1	ł	ţ	1	1	ŀ	ł	1	1	1	١	ł	ł		1	1
REGIONAL TOTALS	4	334	15	2	۳	2	15	ō	27	8	5	135	40	28	ی	3.44	19
Central Region												3		2	1		5
Juah	_	24	-	4	0	0	m	_	2	4	m	ð	80	117	4.0	2.00	20
Salt Lake	ł	ł	ŀ	1	ł	ł	1	1			·	١ ١	}	1	!		: 1
Sanpete	2	126	15	87	Q	34	_	(rt)	27	121	-	149	1, 18	9	ď	4 48	8
Tooele	-	9	-	4	0	0	m	_	~	4	m	6	5	0.	4.0	2.00	2
Utah	က	226	22	262	38	8	80	17	8	355	<b>6</b> 0	453	2.00	1.57	8.8	3.94	8
Wasatch	;	1	ł	1	1	1	1	ļ	}	1	1	1	1	1	1	1	ł
REGIONAL TOTALS	7	436	72	357	23	127	15	22	121	484	55	620	1.42	=	5.0	4.00	87
Southern Region																	
Beaver	_	8	2	σ	0	0	_	ო	Ŋ	σ	-	15	0.17	0.10	4.5	1.80	4
Garfield	ł	1	ł	1	1	!	1	1	1	1	1	1	I	1	1	1	1
Iron	1	1	1	ł	1	1	1		1	}	1	1	1			1	ł
Kane	ľ	1	ł	1	1	1	1	1	ł	ļ	ł	1	I	1	1	}	ł
Millard	7	262	54	117	~	7	ġ	ß	36	133	9	176	0.67	0.50	6.4	3.64	98
Piute	1	1	ł	ł	1	ł	1	1	1	}	1	1	ł	ł	1	}	l
Sevier	7	207	34	189	7	_	۲2	16	25	196	21	269	1.30	0.95	9.6	3.77	69
Washington	-	45	_	7	0	0	-	-	2	7	-	2	0.22	0.16	7.0	3.50	20
₩ayne*	1	1	1	1	1		ij	ł	ł	I	1	1	1	ł	1	ł	ł
REGIONAL TOTALS	9	604	19	322	6	12	32	25	95	343	32	470	0.78	0.57	5.3	3.61	74
Northeastern Region	되																
Daggett	1	1	1	1	ł	!	{		ł	1	1	1	ł	l	1	ł	1
Duchesne	က	324	5	79	7	52	6	27	4	5	40	188	.58	.32	5.3	2.36	33
Uintah	2	145	80	42	-	2	6	3	12	44	6	65	.45	.30	5.3	3.67	75
REGIONAL TOTALS	2	469	23	121	m	22	49	30	26	148	49	253	.54	.32	5.3	2.64	46
Southeastern Region	딝																
Carbon	1	;	1	1	ł	1	1	1	ł	}	1	1	1	1	ŀ	1	ł
Emery	-	8	2	71	7	9	9	0	15	7.7	9	95	90.1	.86	7.1	6.42	100
Grand	1	1	1	1	1	1	1	1	1	{	}	1	1	1	1	1	ł
San Juan	1			1	1	1	ŀ	l	ł	1	1	!	l	1	[		1
REGIONAL TOTALS	-	8	9	7	7	9	9	0	12	77	9	32	1.06	.86	7,1	6.42	100
CTATE TOTALS	ç	.0	ç	000	7	ç		è									

Table 4. Irend of pheasants observed per mile during summer roadside counts, 1978-88.

Region and						Year						Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	0.78	0.41	1.03	1.40	0.74	1.43	0.46	16.0	0.44	0.81	8.	
Cache	17.0	0.34	0.08	0.92	0.17	0.04	0.19	0.03	0.01	0.29	<u>.13</u>	
Davis	1.59	1.47	1.77	1.38	0.83	1.07	0.34	0.71	1.04	1.30	.70	
Morgan	ł	1	{	1	ł	ł	ł	1	ľ	ł	ł	
Rich	1	!	1	1	ł	ł	1	ł	ł	1	1	
Summit	1	ł		ł	ł	ł	ł	}	ł	ł	ł	
Weber	1.01	1.55	2.03	3.17	1.79	;	1.56	ı	98.0	. }	!	
REGIONAL TOTALS	96.0	0.76	1.23	1.56	0.78	0.63	0.48	0.50	0.43	0.71	4.	0.80
Central Region												
Juab	0.0	0.13	0.94	0.89	0.61	0.44	0.77	0.48	0.71	1	38	
Salt Lake	0.0	0.64	0.60	1.09	1.24	!	1.80	0.46	2.10	1.08	}	
Sanpete	1.28	1.85	2.18	5.25	1.78	1.74	0.99	1.87	1.15	1.63	1.18	
Tooele	1.1	3.83	1.08	0.48	0.45	1	1	}	0.20	0.08	5	
Utah	1.96	4.14	1.90	2.19	3.89	1.95	2.21	1	2.13	2.35	2.00	
Wasatch	}	1	1	ļ	ł	1	ľ	1	1	1	ľ	
REGIONAL TOTALS	1,40	2.83	1.68	2.01	2.15	1.72	1.49	1.35	1.61	1.79	1.42	1.80
Southern Region					·							
Beaver	0.71	1.01	0.47	0.63	99.0	0.23	0.11	0.63	0.23	0.08	0.17	
Garfield	1	1	1	1	1	}	ļ	ł	ł	1	ł	
Iron	0.49	0.97	0.67	1.24	0.07	0.31	1	90.0	10.0	0.00	1	
Kane	i	1	1	ł	ł	ł	ł	1	ľ	1	ł	
Millard	1.38	1.1	0.88	2.85	1.15	1.28	1.09	2.27	96.0	2.00	0.67	
Piute	1	1	ł	İ	1	1	1	!		ł	1	
Sevier	1.72	1.10	1.13	0.87	1.37	1.27	1.52	0.62	1.82	1.95	1.30	
Washington	٦.40	1.36	0.70	1.4	0.62	1.09	ł	0.13	1.30	0.47	0.22	
Wayne	2.10	0.21	1	1.04	0.40	0.26	ł	0.39	0.38	ł	1	
REGIONAL TOTALS	1.29	1.08	0.86	1.65	1.05	0.94	1.09	1.25	1.07	1.44	0.78	1.17
Northeastern Region												
Daggett	l	1	ł	ł	١	1	1	1	1	ļ	ł	
Duchesne	0.68	0.38	0.56	0.84	0.73	0.72	0.68	91.0	9.4	0.38	.58	
Uintah	1.75	1.90	1.60	1.05	1.27	2.97	1.33	0.35	0.46	0.55	.45	
REGIONAL TOTALS	1.02	0.00	0.93	0.91	06.0	1.39	16.0	0.22	0.45	0.45	54	0.81
Southeastern Region												
Carbon	0.22	0.40	0.37	1.22	0.28	0.42	1	0.12	0.26	0.00	1	
Emery	0.53	0.39	0.49	0.74	0.74	0.32	99.0	0.83	0.73	0.72	1.06	
Grand	ł		ł	}	1	1.70	{	1	1	1	1	
San Juan	0.00	0.35	1	1	Į	1	1	ł	ļ	ł	1	
REGIONAL TOTALS	0.35	0.38	0.45	0.86	0.61	0.39	99.0	0.59	0.51	0.72	1.06	0.55
STATE TOTALS	1.02	1.37	1.10	1.46	1.19	1.06	0.94	0.81	0.90	1.10	0.81	1.10

Table 5. Irend of young observed per mile during summer roadside pheasant counts, 1978-88.

0.26 0.65 0.29 0.62 0.62 0.13 0.13 0.02 0.00 0.25 0.13 0.15 0.16 0.25 0.16 0.16 0.16 0.16 0.16 0.16 0.16 0.16	Region and						Year						Average
0.55 0.03 0.69 1.07 0.44 0.63 0.26 0.65 0.29 0.62 0.47 0.20 0.07 0.70 0.41 0.00 0.15 0.25 0.65 0.29 0.62 0.47 0.20 0.07 0.70 0.11 0.00 0.15 0.02 0.00 0.25 0.98 0.99 0.57 0.99 0.70 0.99 0.70 0.99 0.75 0.98 0.99 0.75 0.98 0.99 0.75 0.98 0.99 0.75 0.98 0.99 0.75 0.98 0.95 0.70 0.75 0.00 0.55 0.85 0.99 0.57 0.00 0.75 0.02 0.86 0.63 0.42 0.32 0.33 0.32 0.33 0.32 0.55 0.79 0.72 0.72 0.99 0.75 0.84 0.75 0.75 0.75 0.75 0.75 0.75 0.75 0.75	County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
0.55 0.03 0.69 1.07 0.44 0.63 0.26 0.65 0.29 0.62 1.07 0.47 0.20 0.13 0.09 0.13 0.00 0.25 1.26 0.99 1.27 0.81 0.43 0.78 0.16 0.13 0.02 0.00 0.25 1.26 0.99 1.27 0.81 0.43 0.78 0.16 0.13 0.02 0.00 0.25 1.26 0.99 1.27 0.81 0.43 0.78 0.16 0.13 0.02 0.00 0.25 1.26 0.29 1.27 0.83 1.38 0.32 0.32 0.35 0.95 0.00 0.00 0.00 0.00 0.00 0.00 0.0	Northern Region										100		0000
0.47 0.20 0.07 0.70 0.11 0.00 0.13 0.02 0.00 0.25  1.26 0.99 1.27 0.81 0.43 0.78 0.16 0.35 0.85 0.89  0.62 1.22 1.53 2.38 1.38 0.35 0.35 0.35 0.35 0.85 0.98  0.76 0.26 0.55 0.88 1.15 0.52 0.35 0.35 0.35 0.35 0.35 0.35  0.77 0.44 0.55 0.89 1.15 0.52 0.35 0.35 0.35 0.35 0.35  1.06 1.53 1.72 4.40 1.44 0.76 1.54 0.30 1.57 0.75  1.06 1.53 1.72 4.40 1.44 0.76 1.54 0.30 1.57 0.79  1.06 1.53 0.75 0.48 0.75 1.31 0.99 1.09 1.26 1.37 1.1  0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07 0.00  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55 0.00  1.16 0.15 0.15 0.15 0.15 0.15 0.15 0.15 0.10 0.10	Box Elder	0.55	0.03	0.69	1.07	0.44	0.63	0.26	0.65	0.29	0.62	30	
1.26 0.99 1.27 0.81 0.43 0.78 0.16 0.35 0.85 0.99  1.27 0.82 1.27 1.83 1.38	Cache	0.47	0.20	0.07	0.70	0.11	0.00	0.13	0.02	0.0	0.25	8	
0.62         1.22         1.53         2.38         1.38	Davis	1.26	0.99	1.27	0.81	0.43	0.78	0.16	0.35	0.85	0.98	.52	
Color   Colo	Morgan	1	1	1	1	1	1	ł	ł	ł	1	1	
0.62         1.22         1.53         2.38         1.38	Rich	1	1	ł	ł	1	ŀ	ł	ł	l	ł	ł	
0.62         1.22         1.53         2.38         1.18	Summit	}	ł	1	1	ł	ł	ł	!	1	1	ł	
8         0.68         0.55         0.88         1.15         0.52         0.35         0.35         0.32         0.55         0.55         0.55         0.35         0.32         0.55         0.55         0.35         0.32         0.55         0.55         0.55         0.39         0.57          0.75         0.72         0.74         0.32         0.55         0.58         0.39         0.57          0.75         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.72         0.74         0.74         1.44         0.76         1.26         0.73         0.75         1.44         1.44         0.76         1.26         0.79         0.79         0.70	Weber	0.62	1.22	•		•		1.27	ľ	0.76	0	ļ	
0.76 0.02 0.85 0.63 0.42 0.36 0.58 0.39 0.57		0.68	0.55	0.88		0.52	0.35			0.32		88	0.57
0.76 0.02 0.85 0.63 0.42 0.36 0.58 0.39 0.57 0.07 0.44 0.32 0.57 0.84 1.26 0.31 1.62 0.79 1.06 1.53 1.72 4.40 1.44 0.76 1.54 0.30 1.23 0.72 2.95 0.76 0.28 0.22 0.68 1.81 1 0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07 0.30 0.18 0.74 0.53 1.07 0.04 0.23 0.05 1.09 1.26 1.37 1 1.15 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55 0 1.06 0.15 0.09 0.67 1.07 0.94 1.19 1.25 1.48 1.54 0.25 0.19 1.07 0.08 0.07 0.07 0.07 0.09 1.09 1.09 1.00 0.22 0.00 1.08 0.08 0.07 0.07 0.07 0.09 1.09 1.09 1.09 0.00 0.00 0.00 0.00	Central Region										٠,	2	
0.07 0.44 0.32 0.57 0.84 1.26 0.31 1.62 0.79 1.06 1.53 1.72 4.40 1.44 1.44 0.76 1.54 0.90 1.23 0.72 2.95 0.76 0.28 0.22 0.08 0.07 1.43 3.00 1.30 1.68 2.52 1.34 1.26 1.68 1.81 1 1.06 2.11 1.21 1.51 1.63 1.31 0.99 1.09 1.26 1.37 1  0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07 0  0.38 0.74 0.53 1.07 0.04 0.23 0.05 1.09 1.25 1.48 1.54 0.00 1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55 0  1.45 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54 0  1.45 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54 0  1.46 0.15 0.87 0.57 0.89 0.43 0.68 0.28 0.13 0.84 1.12 0  0.53 0.27 0.87 0.52 0.54 0.55 0.46 0.07 0.29 0.25 1.49 1.50 0.51 0.14 0.30 0.51 0.51 0.51 0.51 0.51 0.51 0.51 0.5	Juab	0.76	0.05	0.85	0.63	0.42	0.36	0.58	0.39	0.57	1	.17	
1.06 1.53 1.72 4.40 1.44 1.44 0.76 1.54 0.90 1.23  0.72 2.95 0.76 0.28 0.22	Salt Lake	0.07	0.44	0.32	0.57	0.84	1	1.26	0.31	1.62	0.79		
0.72 2.95 0.76 0.28 0.22 0.08 0.07 1.43 3.00 1.30 1.68 2.52 1.34 1.26 1.68 1.81 1  0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07 0  0.38 0.74 0.53 1.07 0.04 0.23 0.05 1.08 1.55 0  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55 0  1.145 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54 0  1.06 1.02 0.49 0.89 0.43 0.68 0.28 0.19 1.07 0.15 0.87 0.57 1.30 0.76 0.68 0.86 1.03 0.84 1.12 0  0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  0.10 0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15  0.31 0.69 0.66 0.63 0.66 0.63 0.65 0.69 0.14 0.30 0.31  0.10 0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15 0.00  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.18 0.45 0.63 0.69 0.84  0.27 0.30 0.27 0.37 0.37 0.50 0.49 0.89 0.49 0.49 0.69 0.14 0.30 0.31  0.10 0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15 0.00  0.10 0.10 0.10 0.87 0.77 0.68 0.63 0.69 0.84	Sanpete	1.06	1.53	1.72	4.40	<u>.</u> 4	<u>-</u> 4	0.76	1.54	06,0	1.23	96	
1.43 3.00 1.30 1.68 2.52 1.34 1.26 — 1.68 1.81  1.06 2.11 1.21 1.51 1.63 1.31 0.99 1.09 1.26 1.37  0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07  0.38 0.74 0.53 1.07 0.04 0.23 — 0.05 1.08 0.76 1.55  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55  1.14 0.99 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.08 1.02 0.49 0.89 0.43 0.68 — 0.28 0.19 — 0.28  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.33  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.31  1.01 0.01 0.02 0.03 0.06 0.06 1.06 0.09 0.14 0.30 0.31  0.15 0.30 0.22 0.93 0.18 0.27 — 0.02 0.14 0.30 0.31  0.16 0.35 0.28 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.45 0.45 0.59  0.25 0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.43 0.59 0.84	Tooele	0.72	2.95	0.76	0.28	0.22	}	}	ł	0.08	0.07	.07	
1.06   2.11   1.21   1.51   1.63   1.31   0.99   1.09   1.26   1.37     0.58   0.87   0.37   0.54   0.48   0.17   0.08   0.51   0.14   0.07     0.38   0.74   0.53   1.07   0.04   0.23     0.05     0.00     1.12   0.89   0.69   2.27   0.83   1.00   0.89   1.98   0.76   1.55     1.45   0.93   0.90   0.67   1.07   0.94   1.19   1.25   1.48   1.54     1.45   0.93   0.90   0.67   1.07   0.94   1.19   1.25   1.48   1.54     1.68   1.02   0.49   0.89   0.43   0.68   0.86   0.10   0.22     1.05   0.87   0.67   1.30   0.76   0.68   0.86   1.03   0.84   1.12     1.05   0.87   0.67   1.30   0.76   0.68   0.80   0.14   0.30   0.31     1.05   0.87   0.67   0.83   0.95   2.25   1.12   0.29   0.33   0.40     0.53   0.27   0.37   0.52   0.54   0.55   0.69   0.14   0.30   0.31     0.15   0.30   0.22   0.93   0.18   0.45   0.69   0.14   0.30   0.51     0.24   0.66   0.65   0.66   0.65   0.68   0.65   0.65   0.65     0.24   0.66   0.61   0.65   0.68   0.23   0.45   0.65   0.59     0.24   0.66   0.61   0.65   0.68   0.23   0.45   0.65   0.59     0.24   0.66   0.61   0.65   0.68   0.23   0.45   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.78   0.69   0.69     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.78   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.77   0.78   0.69   0.84     0.78   0.79   0.70   0.70   0.77   0.77   0.78   0.69   0.84     0.79   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70	Utah	1.43	3.00	1.30	1.68	2.52	1.34	1.26	ł	1.68	1.8	1.57	
1.106 2.11 1.21 1.51 1.63 1.31 0.99 1.09 1.26 1.37  0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07  0.38 0.74 0.53 1.07 0.04 0.23 0.05 0.05  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55  1.145 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.06 0.15 0.87 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.33  0.51 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  0.51 0.30 0.22 0.93 0.18 0.27 0.69 0.14 0.30 0.31  0.15 0.36 0.35 0.52 0.45 0.18 0.45 0.65 0.69 0.14 0.30 0.31  0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15 0.00  0.15 0.28 0.35 0.55 0.45 0.18 0.45 0.65 0.69 0.14 0.30 0.51  0.16 0.36 0.37 0.52 0.45 0.18 0.45 0.65 0.69 0.14 0.30 0.51  0.17 0.30 0.22 0.93 0.18 0.27 0.02 0.13 0.55 0.59  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.63 0.63 0.59 0.84  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.45 0.45 0.45 0.69 0.89	Wasatch	1	1	ł	1	1	1	1	1	ł	ł	1	
0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07  0.38 0.74 0.53 1.07 0.04 0.23 0.05 0.05  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55  1.45 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.08 1.02 0.49 0.89 0.43 0.68 0.86 1.03 0.84 1.12  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.33  0.54 0.55 0.28 0.35 0.52 0.45 0.18 0.45 0.65 0.69 0.14 0.30 0.31  0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15 0.00  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.65 0.65 0.69 0.10  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.65 0.69 0.69 0.60 0.69 0.70 0.29  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.65 0.69 0.60 0.60 0.60 0.60 0.60 0.60 0.60	REGIONAL TOTALS	1.06	2.11		1.51	1.63	1.31	0.99	7.09	1.26			1.35
0.58 0.87 0.37 0.54 0.48 0.17 0.08 0.51 0.14 0.07	Southern Region												
0.38 0.74 0.53 1.07 0.04 0.23 0.05 0.00  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55  1.45 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.08 1.02 0.49 0.89 0.43 0.68 0.28 0.19  1.05 0.15 0.87 0.57 1.30 0.76 0.68 0.86 1.03 0.84 1.12  21on	Beaver	0.58	0.87	0.37	0.54	0.48	0.17	0.08	0.51	0.14	0.07	0.10	
0.38 0.74 0.53 1.07 0.04 0.23 0.05 0.00  1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55  1.145 0.93 0.90 0.67 1.07 0.94 1.19 1.25 1.48 1.54  1.08 1.02 0.49 0.89 0.43 0.68 0.28 0.19 0.80  1.76 0.15 0.87 0.21 0.12 0.28 0.19 0.29  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.31  0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  0.15 0.30 0.22 0.93 0.18 0.27 0.03 0.56 0.59  0.35 0.28 0.35 0.52 0.45 0.18 0.45 0.63 0.65 0.59  0.00 1.10 0.87 0.77 0.68 0.63 0.69 0.14  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.45 0.63 0.69 0.84  0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Garfield	ł	ł	i	}	1	ł	1	1	ł	ł	ł	
1.12	Iron	0.38	0.74	0.53	1.07	0.04	0.23	!	0.05	ł	0.0	ŀ	
1.12 0.89 0.69 2.27 0.83 1.00 0.89 1.98 0.76 1.55	Kane	1	1	1			1	!	1	1	1	ł	
1.45   0.93   0.90   0.67   1.07   0.94   1.19   1.25   1.48   1.54     1.08   1.02   0.49   0.89   0.43   0.68     0.86   0.22     1.76   0.15     0.87   0.21   0.12     0.28   0.19       1.05   0.87   0.67   1.30   0.76   0.68   0.86   1.03   0.84   1.12     0.53   0.27   0.37   0.52   0.54   0.55   0.46   0.07   0.29   0.25     1.41   1.50   1.20   0.83   0.95   2.25   1.12   0.29   0.33   0.40     0.81   0.69   0.66   0.63   0.66   1.06   0.69   0.14   0.30   0.31     0.15   0.30   0.22   0.93   0.18   0.27     0.02   0.15       0.35   0.28   0.35   0.52   0.45   0.18   0.45   0.63   0.56   0.59     0.24   0.26   0.31   0.65   0.68   0.23   0.45   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.79   0.79   0.70   0.70   0.70   0.69   0.69   0.84     0.70   0.70   0.70   0.70   0.70   0.60   0.60   0.60   0.60     0.70   0.70   0.70   0.70   0.70   0.70   0.60   0.60   0.60     0.70   0.70   0.70   0.70   0.70   0.60   0.60   0.60   0.60     0.70   0.70   0.70   0.70   0.70   0.70   0.60   0.60   0.60     0.70   0.70   0.70   0.70   0.70   0.70   0.60   0.60     0.70   0.70   0.70   0.70   0.70   0.70   0.70   0.60     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70     0.70   0.70   0.70   0.70   0.70   0.70   0.70   0.	Millard	1.12	0.89	0.69	2.27	0.83	1.00	0.89	1.98	0.76	1.55	0.50	
1.45   0.93   0.90   0.67   1.07   0.94   1.19   1.25   1.48   1.54     1.08   1.02   0.49   0.89   0.43   0.68       0.86   0.22     1.76   0.15     0.87   0.21   0.12     0.28   0.19       1.05   0.87   0.67   1.30   0.76   0.68   0.86   1.03   0.84   1.12     0.53   0.27   0.37   0.52   0.54   0.55   0.46   0.07   0.29   0.31     0.81   0.69   0.66   0.63   0.66   1.06   0.69   0.14   0.30   0.31     0.15   0.30   0.22   0.93   0.18   0.27     0.02   0.15       0.35   0.28   0.35   0.52   0.45   0.18   0.45   0.63   0.56   0.59     0.24   0.26   0.31   0.65   0.68   0.23   0.45   0.69   0.45   0.59     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.78   1.04   0.80   1.10   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.84   0.86   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.84   0.85   0.85   0.87   0.77   0.68   0.63   0.69   0.84     0.85   0.85   0.85   0.77   0.68   0.65   0.65   0.65     0.85   0.85   0.77   0.68   0.65   0.65   0.65     0.85   0.85   0.85   0.77   0.68   0.65   0.65     0.85   0.85   0.85   0.77   0.68   0.65   0.65     0.85   0.85   0.85   0.77   0.68   0.65   0.65     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.77   0.85   0.85     0.85   0.85   0.75   0.85     0.85   0.85	Piute	1	1	1	}	1	1	1	ł	ł	I	ļ	
1.08 1.02 0.49 0.89 0.43 0.68 0.86 0.22  1.76 0.15 0.87 0.21 0.12 0.28 0.19  1.05 0.87 0.57 0.76 0.68 0.86 1.03 0.84 1.12  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.25  1.41 1.50 1.20 0.83 0.95 2.25 1.12 0.29 0.33 0.40  0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  aion  0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15   0.00 1.10 1.10   0.04 0.26 0.31 0.65 0.68 0.23 0.45 0.69 0.84 0.59  0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.69 0.63 0.69 0.84  0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Sevier	1.45	0.93	0.90	0.67	1.07	0.94	1.19	1.25	1.48	1.54	0.95	
1.76 0.15 — 0.87 0.21 0.12 — 0.28 0.19 — 0.99  1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12 0  0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.25  1.41 1.50 1.20 0.83 0.95 2.25 1.12 0.29 0.33 0.40  0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31  0.15 0.30 0.22 0.93 0.18 0.27 — 0.02 0.15 — 0.09  0.35 0.28 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59	Washington	1.08	1.02	0.49	0.89	0.43	99.0	1	ı	98.0	0.22	0.16	
1.05 0.87 0.67 1.30 0.76 0.68 0.86 1.03 0.84 1.12 0  gion		1.76	0.15	ı	0.87	0.21	0.12	1	0.28	0.19	1	1	
9ion       —		1.05	0.87	0.67	1.30	0.76	0.68	0.86	1.03	0.84	1.12	0.57	0.92
0.53 0.27 0.37 0.52 0.54 0.55 0.46 0.07 0.29 0.25 1.41 1.50 1.20 0.83 0.95 2.25 1.12 0.29 0.33 0.40 0.81 0.69 0.66 0.63 0.66 1.06 0.69 0.14 0.30 0.31 0.40 0.15 0.35 0.28 0.35 0.52 0.45 0.18 0.27 0.02 0.15 1.10 0.35 0.35 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59 0.35 0.35 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59 0.35 0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.34 0.59 0.84 0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Vortheastern Region												
0.53     0.27     0.37     0.52     0.54     0.55     0.46     0.07     0.29     0.25       1.41     1.50     1.20     0.83     0.95     2.25     1.12     0.29     0.33     0.40       gion     0.81     0.66     0.66     1.06     0.69     0.14     0.30     0.31       gion     0.15     0.22     0.93     0.18     0.27      0.02     0.15        0.35     0.28     0.35     0.52     0.45     0.18     0.45     0.63     0.56     0.59           1.10             0.00       1.10           0.24     0.26     0.31     0.65     0.68     0.23     0.69     0.84       0.78     1.04     0.80     1.10     0.87     0.77     0.68     0.63     0.69     0.84	Daggett	1	1	{	1	ł	ł	ł	ł	i	ŀ	ŀ	
1.41     1.50     1.20     0.83     0.95     2.25     1.12     0.29     0.33     0.40       gion     0.81     0.66     0.66     1.06     0.69     0.14     0.30     0.31       gion     0.15     0.30     0.22     0.93     0.18     0.27      0.02     0.15        0.35     0.28     0.35     0.52     0.45     0.18     0.45     0.63     0.56     0.59            1.10           0.24     0.26     0.31     0.65     0.68     0.23     0.45     0.45     0.45     0.34     0.59       0.78     1.04     0.80     1.10     0.87     0.77     0.68     0.63     0.69     0.84	Duchesne	0.53	0.27	0.37	0.52	0.54	0.55	0.46	0.07	0.29	0.25	.32	
9:81         0.69         0.66         0.63         0.66         1.06         0.69         0.14         0.30         0.31           9:00         0.15         0.30         0.22         0.93         0.18         0.27          0.02         0.15            0.35         0.28         0.35         0.52         0.45         0.18         0.45         0.63         0.56         0.59               1.10                0.00           1.10               0.24         0.26         0.31         0.65         0.68         0.23         0.45         0.42         0.34         0.59           0.78         1.04         0.80         1.10         0.87         0.77         0.68         0.63         0.69         0.84	Uintah	1.41	1.50		0.83	0.95	2.25	1.12	0.29	0.33	0.40	30	
910n       0.15     0.30     0.22     0.93     0.18     0.27      0.02     0.15        0.35     0.28     0.35     0.52     0.45     0.18     0.45     0.63     0.56     0.59            1.10           0.24     0.26     0.31     0.65     0.68     0.23     0.45     0.42     0.34     0.59       0.78     1.04     0.80     1.10     0.87     0.77     0.68     0.63     0.69     0.84	REGIONAL TOTALS	0.81	0.69	99.0	0.63	99.0	1.06	0.69	0.14	0.30	0.31	32	0.60
0.15 0.30 0.22 0.93 0.18 0.27 0.02 0.15 0.35 0.28 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59  1.10 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Southeastern Region		•										
0.35 0.28 0.35 0.52 0.45 0.18 0.45 0.63 0.56 0.59  1.10	Carbon	0.15	0.30	0.22	0.93	0.18	0.27	1	0.02	0.15	1	ł	
0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.63 0.69 0.84 0.72 0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Emery	0.35	0.28	0.35	0.52	0.45	0.18	0.45	0.63	0.56	0.59	98.	
0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.42 0.34 0.59 0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	Grand	}	ŀ	i	1	1	1.10	1	ł	1	}	{	
0.24 0.26 0.31 0.65 0.68 0.23 0.45 0.42 0.34 0.59 0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	San Juan	!	0.00	1	1	1	1	1	1	!	1	ł	
0.78 1.04 0.80 1.10 0.87 0.77 0.68 0.63 0.69 0.84	EGIONAL TOTALS	0.24	0.26	0.31		0.68	0.23	0.45	0.42	0.34	0.59	98.	0.42
	TATE TOTALS	0.78	1.04	0.80	1.10	0.87	0.77	0.68	0.63	0.69	0.84	.59	0.82

Table 6. Irend of young per adult hen ratios found during summer roadside pheasant counts, 1978-88.

County Northern Region	1978	1979	1980	1981	1982	1983		1095	1986	1987	1088	000000
Northern Region							1984	200	200		700	19/8-8/
Box Elder	3.64	3.92	2.60	4.09	3.00	1.41	2.44	3.63	2.38	4.42	2.21	
Cache	2.80	2.40	4.00	4.18	3.43	0.00	3.40	1.50	0.00	7.17	2.33	
Davis	4.71	2.30	2.78	1.81	1.25	3.31	1.67	1.26	5.95	3.30	98.9	
Morgan	1	ŀ	1	l	1	ł	ł	1	ł	1	ł	
Rich	1	1	1	1		!	!	ł	į		ł	
Summit	}	ł	1	ł	1	ŀ	1	ł	1		ł	
Weber	1.81	4.13	3.97	3.38	4.70	ļ	5.50	ł	7.33	ł	ł	
REGIONAL TOTALS	3.10	3.14	3.07	3.39	3.00	1.98	3.23	2.60	3.92	4.18	3.44	3.16
Central Region												
Juab	5.60	1.00	6.67	4.29	3.75	6.50	4.20	4.33	4.00	ł	2.00	
Salt Lake	6.00	3.27	1.70	2.04	2.73	ł	3.58	3.13	5.10	3.88	1	
Sanpete	6.03	5.91	4.97	17.9	5.48	5.85	5.38	6.10	3.98	3.25	4.48	
Tooele	2.69	3.93	2.88	2.43	2.17	1	ł	ł	1.50	4.00	2.00	
Utah	3.42	3.20	2.65	3.80	3.53	2.51	1.66	ł	4.16	4.18	3.94	
Wasatch	}	ł	1	-		ł	ł	ł	}	ł	ł	
REGIONAL TOTALS	3.88	3.59	3.23	4.08	3.95	3.69	2.59	5.61	4.18	3.89	4.00	3.87
Southern Region												
Beaver	4.72	00.9	6.29	7.00	4.89	3.75	2.33	5.11	2.60	6.00	1.80	
Garfield	1	ł	1	1	1	ł	}	}	1	ł	1	
Iron	5.00	4.25	5.14	8.56	3.00	5.33	1	3.00	ł	0.00	1	
Kane	ł	1	ł	1	1	1	1	ł	i	1	;	
Millard	6.05	5.55	6.00	4.65	4.48	6.37	6.24	8.95	4.04	3.99	3.64	
Piute	ł	ŀ	!	ŀ	ł	!	1	ľ	1	1	ł	
Sevier	6.67	5.96	4.44	4.18	3.94	3.49	4.64	4.58	5.25	5.14	3.77	
Washington	4.52	4.95	5.50	5.69	3.46	2.23	1	1	2.78	1.1	3.50	
Wayne	7.57	2.00	!	8.75	1.67	3.33	1	3.17	2.43	ł	1	
REGIONAL TOTALS	5.85	5.44	5.16	4.66	3.93	3.69	5.05	5.92	4.43	4.32	3.61	4.85
Northeastern Region												
Daggett	l	ł	I	ł	1	}	1	ł	1	}	ł	
Ouchesne	5.11	5.82	4.22	2.94	6.10	5.03	3.81	3.00	3.73	3.40	2.36	
Uintah	5.63	5.25	3.22	5.50	4.96	5.16	13.00	11.50	4.13	3.65	3.67	
REGIONAL TOTALS	5.39	5.39	3.52	3.73	5.54	5.11	6.38	5.83	3.88	3.52	2.64	4.83
Southeastern Region	;	;	•	į	,							
Carbon	3.00	4.80	2.60	7.91	2.67	3.13	1	0.20	3.00	1	1	
Emery	2.61	4.29	3.37	3.97	2.56	2.93	3.75	4.17	5.15	6.63	6.42	
Grand	ł	}	1	ļ	¦	5.50	1	1	ļ	!		
San Juan	0.00	0.00	1	1	1	ı	1	-	1	1	1	
REGIONAL TOTALS	2.70	3.00	3.65	4.98	4.93	3.21	3.75	3.80	4.04	6.63	6.42	4.07
STATE TOTALS	4.32	4.05	3.60	4.12	3.88	3.85	3.92	5.04	4.20	4.08	3.68	4.11

Table 7. Irend of the percent of hens observed with broods during summer roadside pheasant counts, 1978-1988.

County Northern Region	1078											)
Northern Region	2	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Box Elder	8	62	89	83	73	25	26	74	48	75	4	
Cache	99	8	100	11	11	0	100	22	l	83	23	
Davis	88	8	63	71	67	75	33	42	82	83	98	
Morgan	1	;	1	1	1	1	ł	l	ł	ł	ł	
Rich	1	ł	ł	ł	ŀ	1	ł	ł	ł	ł	1	
Summit	ł	ł	ł	l	ł	1	1	ł	ł	1	1	
Weber	39	2	001	6	6	}	95	}	100	1	ł	
REGIONAL TOTALS	64	17	76	8	76	57	99	09	62	82	19	69
Central Region												
Juab	90	1	901	90	100	100	8	901	90	1	22	
Salt Lake	90	64	17	57	62	; }	62	63	8	88	;	
Sanpete	6	100	83	76	95	95	8	92	76	82	88	
Tooele	69	8	75	11	<b>6</b> 9	1	ł	ł	20	001	20	
Utah	69	57	4	99	1	9	63	ł	98	8	89	
Wasatch	1	ł	ļ	ł	ŀ	1	1	1	1	1	!	
REGIONAL TOTALS	74	99	82	72	76	12	5	26	84	16	82	74
Southern Region												
Beaver	73	7.7	11	98	68	20	33	83	80	100	\$	
Garfield	1	ł	ł	ŀ	ŀ	١	ł	ŀ	ļ	I	ł	
Iron	98	83	98	100	001	100	ļ	100	1	0	1	
Kane	1	1	ł	1	1	ł	}	1	1	1	}	·
Millard	82	88	87	83	73	8	9	84	86	98	98	
Piute	1	1	}	ł	ł	ł	ł	1	ŀ	;	ł	
Sevier	97	ጽ	96	82	æ	9/	2	88	87	88	69	
Washington	87	95	33	99	11	83	1	1	4	22	22	
Mayne	9	000	ł	88	78	1	1	83	100	-	1	
REGIONAL TOTALS	89	6	87	81	80	83	91	85	88	82	74	98
Northeastern Region												
Daggett	ŀ	1	1	ŀ	ł	ł	ł	ł	1	ŀ	1	
Duchesne	83	88	11	89	99	82	67	75	73	96	39	
Uintah	95	87	92	100	86	7.5	86	75	73	16	75	
REGIONAL TOTALS	8	88	87	78	75	11	72	75	73	94	46	18
Southeastern Region											·	
Carbon	44	901	75	300	29	63	ł	20	99	ł	ł	
Emery	84	43	89	72	28	64	65	29	35	<b>00t</b>	901	
Grand	1	1	ł	}	ł	901	1	ì	1	1	<b>¦</b>	
San Juan	0	0	1	1	ł	1	ł	ł	ł	1	1	
REGIONAL TOTALS	48	26	70	79	59	29	65	65	16	100	100	70
STATE TOTALS	9/	73	71	79	75	74	75	62	83	87	72	9/

Table 8. Irend of average brood size for pheasants, 1978-88.

												100
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	5.71	6.38	3.40	4.90	4.13	4.00	4.63	5.77	5.33	6.0	8.8	
Cache	4.60	3.50	4.00	5.93	6.50	0.00	3.40	3.00	0.00	8.4	4.0	
Davis	4.79	4.00	5.13	3.64	2.00	5.40	3.33	3.50	5.12	4.4	9.9	
Morgan	;	1	ł	1	}	ı	ł	ł	ł	1	1	
Rich	1	1	1	ł	1	!	}	ł	ŀ	1	ł	
Summit	1	ł	1	}	ł	1	1	}	1	!	ł	
Weber	4.80	6.00	4.37	3.70	5.66	1	9.00	ł	6.33	!		
REGIONAL TOTALS	5.00	5.22	4.21	4.48	4.88	4.58	4.72	5.11		6	5.4	4 87
Central Region												9
Juab	5.60	ł	4.00	3.80	3.75	6.50	6.00	4.33	4.67	†	4.0	
Salt Lake	9.00	5.13	3.33	4.67	4.44	!	4.75	5.00	5.70	89,	<u> </u>	
Sanpete	6.56	5.98	5.43	7.24	5.93	6.39	6.38	8.28	5.10	8.	5.8	
Tooele	4.57	8.93	3.83	3.67	3.50	ł	!	ł	3.00	4.0	4.0	
Utah	4.91	5.45	4.09	5.38	4.99	4.02	2.95	1	4.75	4.9	4.8	
Wasatch	1	i	1	1	1	1	-	1	1	ł	ŀ	
REGIONAL TOTALS	5.29	5.81	4.46	5.66	5.15	5.01	3.75	7.42	4.89	8.4	5.0	5.22
Southern Region												
Beaver	6.50	7.10	7.25	6.50	5.00	6.50	7.00	5.75	3.25	0.9	4.5	
Garfield	1	ł	ł	!	ł	1	ł	}	1	1	!	
Iron	5.00	4.25	9.00	8.14	3.00	5.33	1	1	1	0.0	ł	
Kane	1	ł	ł	+	;	1	ł	1	İ	ł	i	
Millard	6.88	6.31	6.38	6.30	6.30	6.40	9.00	10.63	3.72	5.3	6.4	
Piute	1	1	}	ł	ł	1	1	ł	1	1	1	
Sevier	6.40	5.94	4.70	2.00	4.56	5.14	5.10	5.17	5.69	5.8	5.6	
Washington	6.33	5.00	1	5.90	4.40	3.90	ł	!	4.14	5.0	7.0	
Wayne	10.25	2.00	i	1.00	2.00	1	1	3.33	2.25	ł	1	
REGIONAL TOTALS	6.71	5.96	5.49	6.14	4.98	5.18	5.42	7.35	4.70	5.6	5.3	5.75
Northeastern Region				٠.								
Daggett	1	ł	ł	ł	1	ł	ŀ	1	1	ł	ŀ	
Duchesne	6.54	9.90	5.50	4.58	7.31	4.50	5.87	4.00	5.75	3.9	5.3	
Uintah	5.75	5.56	3.30	5.50	4.25	5.11	5.50	6.33	5.71	4.4	5.3	
REGIONAL TOTALS	6.12	5.93	3.90	4.89	5.84	4.87	5.72	4.78	5.74	4.1	5,3	5. 19
Southeastern Region	;	;										
Larbon	ر. م	3.33	0.0	7.67	9.00	3.00	!	9.	1	1	}	
Emery	5.27	0.9	7.00	00.9	4.45	9.60	2.00	5.20	6.83	5.0	7.1	
Grand	1	}	I	1	ł	5.50	i	1	ł	ŀ	1	
San Juan	1	!	.	1	1	11	}	}	ı	1	-	
REGIONAL TOTALS	5.67	5.00	6.86	6.24	4.64	5.30	5.00	4.82	5.46	5.0	7.1	5.40

Table 9. Summary of pheasant hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Birds	Birds per	% of	% of
County	Size*	<u> Afield</u>	Bagged	<u> Hunter-day</u>	Pressure	<u> Harvest</u>
Northern Region						
Box Elder	382	16,412	8,114	.49	8.91	8.30
Cache	216	10,485	4,975	.47	5.69	5.09
Davis	310	16,496	5,359	.32	8.95	5.48
Morgan	5	116	200	1.71	.06	.20
Rich	2	183	33	(.18)	(.09)	(.03)
Summit	5	183			.09	
Weber	383	21,037	7,246	.34	11.42	7.42
REGIONAL TOTALS	1,303	64,916	25,929	.40	35.24	26.55
<u>Central Region</u>						
Juab	122	3,890	1,903	.49	2.11	1.94
Salt Lake	194	8,364	2,137	.26	4.54	2.18
Sanpete	309	12,973	10,385	.80	7.04	10.63
Tooele	163	7,012	2,153	.31	3.80	2.20
Utah	866	39,454	25,228	.64	21.42	25.83
Wasatch	6	250	150	(.60)	(.13)	(.15)
REGIONAL TOTALS	1,660	71,945	41,958	58	39.06	42.96
Southern Region						12170
Beaver	22	1,335	550	.41	.72	.56
Garfield	2	66	183	2.75	.03	.18
Iron	26	1,085	250	.23	.58	.25
Kane		2,003	250	.23	. 50	.23
Millard	221	9,750	5,893	.60	5.29	6.03
Piute	8	434	183	.42	.23	.18
Sevier	225	10,886	6,194	.57	5.91	
Washington	14	550	217	.39		6.34
Wayne	3	133	21 <i>7</i> 83		.29	.22
REGIONAL TOTALS	521	24,243	13,557	.63		.08
Northeastern Region		24,243	13,557	.56	13.16	13.88
Daggett	4	250	FO	( 20)	( 10)	
Duchesne	153		50	(.20)	(.13)	(.05)
Uintah	115	6,895	6,194	.90	3.74	6.34
REGIONAL TOTALS	272	5,943	3,823	.64	3.22	3.91
Southeastern Region	212	13,090	10,068	.77	7.10	10.30
Carbon Carbon	70	2 020	1 450		•	
Emery	70 100	2,838	1,452	.51	1.54	1.48
Grand	109	5,626	3,840	.68	3.05	3.93
San Juan	1	83	16	(.20)	(.04)	(.01)
	3	66	100	1.50	.03	.10
REGIONAL TOTALS	183	8,615	<u>5,409</u>	63	4.67	5.53
Unknown Counties	14	1,369	734	.54	.74	.75
STATE TOTALS	3,953	184,180	97,658	.53	100.00	100.00

<sup>\*</sup>Total hunter trips from questionnaire returns.

Table 10. Summary of pheasants bagged per hunter-day by region and county, 1981-88.

Region and				Y	ear			
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	1.03	0.86	0.99	0.81	0.66	0.52	0.62	0.49
Cache	0.88	0.74	0.82	0.66	0.42	0.44	0.52	0.47
Davis	0.65	0.63	0.58	0.56	0.46	0.36	0.43	0.32
Morgan	0.57	0.64	0.58	0.44	0.05	0.18	0.70	1.71
Rich	0.00	0.00	(0.67)	(0.80)	(0.17)	0.00	(1.00)	(0.18)
Summit	0.00	0.00	(0.96)		0.00	0.00	(0.67)	0.00
Weber	0.72	0.63	0.72	0.69	0.55	0.39	0.40	0.34
REGIONAL TOTALS	0.84	0.71	0.78	0.68	0,53	0.42	0.49	0.40
<u>Central Region</u>								
Juab	0.89	0.76	1.00	0.86	0.70	0.64	0.66	0.49
Salt Lake	0.68	0.57	0.66	0.51	0.53	0.40	0.45	0.26
Sanpete	1.18	1.00	1.20	1.08	0.98	0.72	0.73	0.80
Tooele	0.65	0.43	0.60	0.58	0.60	0.44	0.56	0.31
Utah	0.91	0.73	0.81	0.82	0.65	0.64	0.68	0.64
Wasatch	0.00	0.00	(0.21)				(0.32)	(0.60)
REGIONAL TOTALS	0.89	0.71	0.83	0.79	0.69	0.60	0.65	0.58
Southern Region							<u> </u>	0.50
Beaver	1.06	0.77	0.72	0.66	0.52	0.56	0.37	0.41
Garfield	0.53	0.81	0.41	0.52	0.17	0.58	0.14	2.75
Iron	0.74	0.69	0.61	0.43	0.49	0.32	0.28	0.23
Kane	0.00	0.00	(1.00)			0.00	0.00	0.00
Millard	1.02	0.97	1.10	0.92	0.88	0.77	0.68	0.60
Piute	0.85	1.00	0.80	0.66	0.56	0.83	0.67	0.42
Sevier	1.03	0.89	0.96	0.87	0.71	0.68	0.65	0.57
Washington	0.45	0.39	0.43	0.24	0.42	0.40	0.21	0.39
Wayne	0.67	0.88	0.50	0.25	1.22	0.33	0.24	0.63
REGIONAL TOTALS	0.95	0.85	0.89	0.79	0.73	0.67	0.60	0.77
Northeastern Region							<b>U.</b> U.	0.77
Daggett	0.00	0.00	(0.67)	0.00	(0.50)	0.00	(0.50)	(0.20)
Duchesne	1.09	1.05	1.15	0.99	0.88	0.84	0.87	0.90
Uintah	0.98	0.93	0.98	0.86	0.62	0.79	0.80	0.64
REGIONAL TOTALS	1.04	0.99	1.06	0.92	0.75	0.81	0.83	0.56
Southeastern Region					<del></del>	0.01	<u> </u>	<u> </u>
Carbon	0.70	0.54	0.59	0.44	0.42	0.39	0.47	0.51
Emery			0.60		0.58			
Grand	0.63	0.94	2.44	0.38			(0.86)	
San Juan	0.68	0.50	0.76	2.50	0.40	0.58		1.50
REGIONAL TOTALS	0.78	0.56	0.62	0.57	0.51	0.44	0.53	0.63
Unknown Counties	0.77	0.48	1.03	0.47	1.00	0.40	0.63	0.54
STATE TOTALS	0.88	0.74	0.83	0.74	0.63	0.55	0.60	0.53

<sup>( )</sup>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, 1981-88.

Region and					ear			
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	12.94	12.40	13.87	10.02	9.84	8.16	9.00	8.30
Cache	8.66	7.07	7.22	4.92	3.61	4.07	4.83	5.09
Davis	5.33	8.27	7.57	7.84	7.34	5.80	6.12	5.48
Morgan	0.23	0.20	0.13	0.08	0.01	0.05	0.14	0.20
Rich	0.00	0.00	(0.02)		(0.01)	0.00	(0.02)	(0.03)
Summit	0.00	0.00	(0.15)	(0.13)	0.00	0.00	(0.04)	0.00
Weber	7.79	10.18	10.66	12.82	12.28	8.81	5.46	7.42
REGIONAL TOTALS	34.95	38.12	39.46	35.69	33.08	26.90	25.63	26.55
<u>Central Region</u>								
Juab	3.19	2.10	1.87	1.80	2.13	2.95	3.47	1.94
Salt Lake	4.88	5.96	5.86	4.64	5.28	4.90	4.48	2.18
Sanpete	7.28	7.47	7.84	9.11	10.25	10.32	9.53	10.63
Tooele	2.05	1.83	2.08	2.29	2.61	2.63	2.79	2.20
Utah	17.89	16.54	15.73	18.69	17.24	22.25	23.70	25.83
Wasatch	0.00	0.00	(0.02)	(0.06)	(0.09)	(0.02)		
REGIONAL TOTALS	35.29	33.90	33.38	36.52	37.52	43.07	44.12	42.96
Southern Region								
Beaver	0.91	0.68	0.40	0.58	0.51	0.65	0.45	0.56
Garfield	0.08	0.32	0.05	0.12	0.04	0.13	0.02	0.18
Iron	1.08	1.00	0.83	0.35	0.72	0.47	0.32	0.25
Kane	0.00		(0.01)			0.00	0.00	0.00
Millard	7.77	5.37	4.17	6.93	7.85	8.30	6.29	6.03
Piute	0.30	0.13	0.09	0.24	0.13	0.18	0.24	0.18
Sevier	5.37	5.86	5.04	6.06	6.58	7.42	7.07	6.34
Washington	0.58	0.48	0.50	0.35	0.70	0.61	0.24	0.22
Wayne	0.09	0.11	0.03	0.01	0.16	0.04	0.16	0.08
REGIONAL TOTALS	16.17	13.95	11.11	14.74	16.70	17.80	14.82	13.88
Northeastern Region	1							
Daggett	0.00	<b></b>	0.00	0.00	(0.03)	0.00	(0.08)	(0.05)
Duchesne	4.60	5.51	6.17	4.64	5.04	4.11	5.26	6.34
Uintah	3.99	5.13	6.03	4.87	3.72	4.16	4.74	3.91
REGIONAL TOTALS	8.58	10.64		9.74	8.76	8.27	10.09	10.30
Southeastern Region								
Carbon	1.73	1.51	1.40	1.01	1.26	1.37	1.37	1.48
Emery	2.84	1.46		2.13	2.44	2.32	3.00	3.93
Grand	0.11	0.13	0.13	0.05	0.06	0.11	0.37	(0.01)
San Juan	0.12	0.11	0.10	0.05	0.03	0.13	0.47	0.10
REGIONAL TOTALS	4.80	3.20	3.44	3.25	3.78	3.93	5.22	5.53
Unknown Counties	0.21	0.19	0.40	0.30	0.16	0.04	0.10	0.75
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>( )</sup>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, 1981-88.

Region and				7	lear .			
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	11.07	10.77	11.62	9.26	9.38	8.60	8.67	8.91
Cache	8.65	7.11	7.30	5.53	5.39	5.16	5.59	
Davis	7.24	9.83		10.33	10.00	8.92	8.43	
Morgan	0.33	0.23	0.19	0.14	0.20	0.17	0.12	
Rich	0.00			(0.04)			0.01	
Summit	0.00			(0.12)				
Weber	9.62	11.92	12,20	13.93		12.36	8.19	
REGIONAL TOTALS	36.93	39.86			39.03	35.22	31.06	
Central Region								<u> </u>
Juab	3.16	2.05	1.55	1.55	1.91	2.54	3.15	2.11
Salt Lake	6.34	7.74		6.79	6.31	6.72	5.91	
Sanpete	5.46	5.55	5.39	6.28	6.55	7.86	7.76	
Tooele	2.77		2.85	2.93	2.76	3.29	2.99	
Utah	17.30	16.94	16.00	16.90	16.81	19.12	20.72	21.42
Wasatch	0.00			(0.17)				
REGIONAL TOTALS	35.03	35.46	33.10	34.46	34.34	39.59	40.78	
Southern Region								
Beaver	0.74	0.66	0.46	0.65	0.66	0.64	0.73	0.72
Garfield	0.14	0.29	0.11	0.17	0.17	0.12	0.08	0.03
Iron	1.28	1.07	1.12	0.61	0.91	0.80	0.70	
Kane	0.00				(0.02)			
Millard	6.74	4.12	3.15	5.61	5.60	5.95	5.49	
Piute	0.31	0.10	0.10	0.28	0.15	0.12	0.22	
Sevier	4.60	4.90	4.34	5.17	5.83	6.00	6.48	5.91
Washington	1.14	0.91	0.95	1.10	1.04	0.84	0.71	0.29
Wayne	0.12	0.09	0.05	0.31	0.08	0.06	0.41	0.07
REGIONAL TOTALS	15.07	12.14		13.89	14.39	14.56	14.85	
Northeastern Regio						<del>-</del>		
Daggett	0.00			(0.06)	(0.04)	(0.02)	0.09	0.13
Duchesne	3.71	3.91	4.45	3.48	3.58	2.69	3.61	3.74
Uintah	3.59	4.10	5.08	4.24	3.77	2.91	3.56	
REGIONAL TOTALS	7.30	8.01	9.53	7.72	7.34	5.62	7,27	
Southeastern Region	_							·
Carbon	2.18	2.08	1.97	1.71	1.90	1.92	1.76	1.54
Emery	2.95		2.51	2.43	2.66	2.79	3.71	3.05
Grand	0.15	0.10	0.04	0.10	0.02	0.12	0.25	0.04
San Juan	0.15	0.16	0.10	0.02	0.05	0.12	0.17	0.03
REGIONAL TOTALS	5.43	4.23	4.62	4.25	4.63	4.94	5.91	4.67
Unknown Counties	0.24	0.31	0.32	0.47	0.25	0.05	0.09	0.74
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>( )</sup>Data combined in unknown counties because of small sample size.

Table 13. Statewide summary of pheasant harvest statistics, 1948-1988.

•	Total	Total	Hunter-days	Pheasants Per	Pheasants
Year	Hunters	Harvest	<u>Afield</u>	Hunter-day	Per Hunter
1948	96,534	280,914			2.91
1949	88,369	263,340	189,453	1.39	2.98
L950	92,724	249,428	235,309	1.06	2.69
L951	76,576	246,575	171,233	1.44	3.22
L952	78,773	246,559	185,383	1.33	3.13
1953	82,595	245,307	176,480	1.39	2.97
L954	82,370	260,289	201,774	1.29	3.16
1955	78,793	196,195	178,359	1.10	2.49
L956	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	196,302	1.15	2.56
1965	77,409	211,876	186,215	1.14	2.74
1966				1.19	3.17
	78,721	249,814	209,082		
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
1700	J+,J14	77,036	104,100		1./7
TOTALS					
(1948-88)	3,314,542	9,082,146	9,073,092	(39.81)	(111.16)
AVERAGES					
(1948-87)	79,513	219,134	222,223	0.98	2.69

Table 14. Pheasant field bag check summary, 1988.

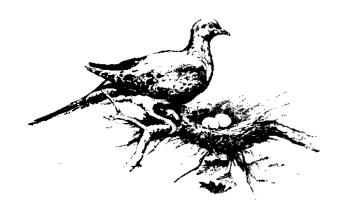
New Parties   Total			ALL HUNTS				COMP	COMPLETE HINTS	5			
Parties Hunters Hours Birds 100 Hr Hunts Hunters Hours Birds 100 Hr Hunts Hunters Hours Birds 100 Hr Hunts Hunters Hours Birds 100 Hr Hunts Hunters Hours Birds 100 Hr Hunts Birds 100	Region and	Total	Total	Total	Total	Birds/	Total Complete	Total	Total	Total	Birde/	Rinde/
235 476 1,419 102 7 213 414 1,105 88 7 5 8 1 8 18 18 38 17 8 8 7 8 7 8 8 18 18 18 198 503 57 11 20 35 85 7 8 7 8 7 8 8 18 18 18 11 1 1 1 1 1 1 1	County	Parties		Hours	Birds	100 Hr	Hunts	Hunters	Hours	Birde	100	, c - c - c - c - c - c - c - c - c - c
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53         125         349         28         8         18         38         125         3         2           88         198         503         57         11         20         35         85         7         8           -	Box Elder	235	476	1,419	102	7	213	414	1.195	ä	7	
88 198 593 57 11 20 35 85 7 8 8	Cache	23	125	349	28	00	82	, e	123	3 °	٠ ،	7.0
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\$\begin{array}{c ccccccccccccccccccccccccccccccccccc	Moroan	3	?	?	õ	<b>-</b>	07	n n	g	`	<b>x</b> 0	0.20
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57         119         197         24         12         42         86         158         18         11           5         433         918         2,468         211         9         293         573         1,560         116         28           1         243         5,246         211         9         293         573         1,560         116         28           241         5,28         1,506         197         13         77         169         525         84         16           241         5,28         1,506         197         13         77         169         525         84         16           241         5,28         1,506         197         13         77         169         525         84         16           241         5,28         1,506         197         13         77         169         525         84         16           25         593         2,006         170         8         150         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9<	Summit	}	1	ľ	1	ł	}		ł	ľ	ŀ	}
S         433         918         2,468         211         9         293         573         1,560         116         28	Weber	57	119	197	24	12	42	<b>%</b>	15.8	ğ	=	,
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255 593 2,006 170 8 150 306 1,020 102 10 3	Kane	ł	ł	}	ł	1	i		İ	ł	ŀ	۱۰
12   35   63   9   14   3   3   9   9   5   56   5     26   62   114   35   31   10   24   45   17   38     314   745   2.258   225   10   163   339   1,074   124   12     314   745   2.258   225   10   163   339   1,074   124   12     315   136   381   43   11   7   113   9   8     316   43   90   15   17   3   7   20   5   25     317   32   7   20   5   25   25     318   330   1,006   146   15   17   3   7   20   5   25     319   320   15   17   3   7   20   5   25     310   2,564   7,328   794   11   555   1,132   3,487   391   11   6     326   226   226   226     327   328   228   228   228     338   330   2,006   146   15   17   33   7   20   5   25     348   3487   391   11   6   6   6   6   6     348   3487   391   11   6   6   6     348   3487   391   11   6   6   6     348   3487   391   11   6     349   3487   391   31   31   31     340   3487   391   31   31     340   3487   391   31   31     340   3487   391   31   31     340   340   3487   391   31     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340     340   340   340   340   340   340   340     340   340   340   340   340   340   340     340   340   340   340   340   340   340   340     340   340   340   340   340   340   340   340   340     340	Millard	255	503	2,006	170	œ	טאנ	306	6	1 2	:	
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26     62     114     35     31     10     24     45     17     39     50     60	Sevier	12	35	63	σ	14	~	•	- ا	l	1 2	! }
gion         16         43         17         38           314         745         2,258         225         10         163         339         1,074         124         12           319         745         2,258         225         10         163         339         1,074         124         12           73         194         625         103         16         12         27         195         53         27           910         136         381         43         11         7         17         113         9         8           910         16         15         17         3         7         20         5         25           910         16         15         17         3         7         20         5         25           910         16         15         17         3         7         20         5         25           16         43         90         15         17         3         7         20         5         25           1112         2,564         7,328         794         11         555         1,332         3,487         301	Washington	. 4	2	200	, ñ	· -	,	n ;	ָּי ת	n	ይ	ž
gion         -	102 Print 120 Pr	9	7	<u>+</u>	ç	<u>-</u>	2	77	45	11	38	0.71
gion   -	REGIONAL TOTALS	214	3/5	2 250	325	5	1 5	1 8			1	1
73     194     625     103     16     12     27     195     53     27       35     136     381     43     11     7     17     113     9     8       108     330     1,006     146     15     19     44     308     62     20       gion     16     43     90     15     17     3     7     20     5     25       30     58      25 <td< td=""><td>Northeastern Booise</td><td>2</td><td>2</td><td>00717</td><td>677</td><td>2</td><td>103</td><td>339</td><td>1.074</td><td>124</td><td>22</td><td>0.37</td></td<>	Northeastern Booise	2	2	00717	677	2	103	339	1.074	124	22	0.37
73         194         625         103         16         12         27         195         53         27           35         136         381         43         11         7         17         113         9         8           gion         108         330         1,006         146         15         17         19         44         308         62         20           30         58         -         25         -         30         58         -         25         -           16         43         90         15         17         3         7         20         5         25	Dracett											
73         194         625         103         16         12         27         195         53         27           35         136         381         43         11         7         17         113         9         8           9ion         108         330         1,006         146         15         17         19         44         308         62         20           30         16         43         90         15         17         3         7         20         5         25           30         58          25          30         58          25 <t< td=""><td>raggerr G</td><td>1 1</td><td></td><td>1</td><td>1</td><td>1</td><td>1</td><td>!</td><td>ł</td><td>ł</td><td>ľ</td><td>ł</td></t<>	raggerr G	1 1		1	1	1	1	!	ł	ł	ľ	ł
35         136         381         43         11         7         17         113         9         8           gion         108         330         1,006         146         15         19         44         308         62         20           30         16         43         90         15         17         3         7         20         5         25           30         58          25          30         58          25                           16         43         90         15         17         3         7         20         5         25         0           1,112         2,564         7,328         794         11         555         1,132         3,487         301         11         6	Duchesne	73	194	625	103	91	12	23	195	53	27	1.96
gion         16         43         90         14         19         44         308         62         20         1           30         16         43         90         15         17         3         7         20         5         25         1           30         58          25          30         58          25                  25            16         43         90         15         17         3         7         20         5         25         0           1,112         2,564         7,328         794         11         555         1,132         3.487         301         11         6	Uintah	32	136	381	43	=	7	71	113	6	00	E.
9100     16     43     90     15     17     3     7     20     5     25       30     58      25      30     58      25                             16     43     90     15     17     3     7     20     5     25     0       1,112     2,564     7,328     794     11     555     1,132     3,487     391     11     0	REGIONAL TOTALS	108	330	1,006	146	15	19	44	308	3	5	7
16     43     90     15     17     3     7     20     5     25       30     58      25      36      25                             16     43     90     15     17     3     7     20     5     25     0       1,112     2,564     7,328     794     11     555     1,132     3,487     391     31     0	Southeastern Region											<del>,</del>
30 58 25 30 58 25 1	Carbon	16	54	8	15	17	ო	7	20	ıc	7,	1.
16   43   90   15   17   3   17   20   5   25   0   17   11   2   2   564   7   328   794   11   555   1   132   3   487   391   31   0	Emery	30	58	1	22	<b>¦</b>	30	28	1	25	1	43
16     43     90     15     17     3     7     20     5     25       1,112     2,564     7,328     794     11     555     1,132     3,487     301     31	Grand	}	ł	1	}	1	;	1	ł	1	ı	? !
1,112 2,564 7,328 794 11 555 1,132 3,487 391 31	San Juan	!	1	1	!	1	1	ł	ł	ł	ļ	;
1,112 2,564 7,328 794 11 555 1,132 3,487 301 11	REGIONAL TOTALS	16	43	96	15	17	က	1	20	۳	7,	1 6
	STATE TOTALS	1,112	2,564	7,328	794	11	555	1 132	١ ٦	200	3 =	

Table 15. Pheasant hunter success trend as determined by field bag check, 1983-88.

15         0.38         9         0.31         5         0.14         Birds/Bir							3					
100 Hr Hanter   100 Hr Hante	Birds/	Birds/	Birds/	Birds/	Rirds/	Rirde/	Rinde/				-   	200
2 0.50 15 0.38 9 0.31 5 0.14 11 0.29 7 1 1 1 0.29 7 1 1 1 0.29 7 1 1 1 0.29 7 1 1 1 0.29 7 1 1 1 1 0.29 7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	100 Hr	Hunter	100 H	Hunter	100 Hr	Hinter	100 H	Hanton	Joor Li	B) rds/	Birds/	Birds/
22         0.50         15         0.38         9         0.31         5         0.14         11         0.29         7           12         0.35         15         0.34         16         0.47         5         0.13         —         31         1.25         2           24         0.59         15         0.35         7         0.18         12         0.21         9         0.13         11         0.23         28           24         0.05         15         0.38         9         0.27         7         0.16         11         0.23         28           34         0.06         15         0.38         9         0.27         7         0.16         11         0.23         11           26         0.35         —<							3	uniter.	100 Hr	Hunter	100 H	Hunter
12   0.35   13   0.34   16   0.46   6   0.19   18   0.29   7     24   0.59   15   0.35   17   0.35   17   0.21   19   18   0.36   8     24   0.59   15   0.35   7   0.18   12   0.21   9   0.33   11     24   0.05   15   0.35   7   0.18   12   0.21   9   0.13   11     24   0.05   15   0.35   7   0.18   12   0.21   9   0.13   11     24   0.05   15   0.35   7   0.18   12   0.21   9   0.13   11     25   0.35   1.62   35   0.89   28   0.74   24   0.68   16   16     25   0.35   1.62   35   0.89   28   0.74   24   0.68   16   16     25   0.31   1.62   35   0.89   28   0.74   24   0.68   16   16     25   0.31   1.62   35   0.89   28   0.74   24   0.68   16   16     25   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10     25   0.71   16   0.66   17   0.59   10   0.48   9   0.50   10     26   0.71   16   0.66   17   0.59   17   0.52   38   0     27   0.70	22	0.50	15	0.38	ъ	12.0	Ľ		:	. 6	,	;
12   0.35   13   0.34   16   0.46   6   0.19   18   1.25   2	1		9	0.47	· 14	5 6	,	<u>*</u>	= ;	67.0	_	0.21
24         0.59         15         0.35         7         0.18         12         0.21         19         0.80         8           24         0.59         15         0.38         9         0.27         7         0.16         11         0.23         28           4         0.06	12	0.35	2 2	77	, 4	346	ļ ч	1 5	<del>-</del> 5	57.7	7	0.08
24         0.59         15         0.35         7         0.18         12         0.21         9         0.13         11           54         0.47         15         0.38         9         0.27         7         0.16         11         0.23         28           34         0.97	<b>'</b>	1	!	<b>S</b> 1	2	<b>?</b>	>		<u>20</u>	0.80	<b>\$</b>	0.20
24         0.59         15         0.35         7         0.18         12         0.21         9         0.13         11           54         0.59         15         0.35         7         0.18         12         0.21         9         0.13         11           54         0.05	ł	ł	ł			ł	I	ŀ	1	l	1	1
\$\begin{array}{c ccccccccccccccccccccccccccccccccccc	!			<b>1</b>	ŀ	<b>¦</b>	l		1	ļ	;	I
S         64         0.35         12         0.21         9         0.13         11           54         0.35	2	1 2	: 1				ł	I	ł	1	1	1
S4	<b>\$</b> 7	ξ. ) (2)	2	0.35	_	0.18	12	0.21	6	0.13	11	0.21
54         0.35         — <td>0.7</td> <td>0.47</td> <td>15</td> <td>0.38</td> <td>6</td> <td>0.27</td> <td>7</td> <td>0.16</td> <td>=</td> <td>0.23</td> <td>28</td> <td>0.20</td>	0.7	0.47	15	0.38	6	0.27	7	0.16	=	0.23	28	0.20
54         0.35  -	i	,										
4         0.06	<b>%</b>	0.35	ł	ŀ	1	1	1	1	1	1	ł	ł
34 0.97	4	90.0	ł	ł	1	1	1	ł	ŀ	ł		
80         2.18  -	34	0.97	1	ŀ	ł	ł	ŀ	ł	ļ	t	}	1
26 0.86 53 1.62 35 0.88 28 0.74 24 0.68 16  5 31 0.31 53 1.62 35 0.88 28 0.74 24 0.68 16  10	8	2.18	ŀ	1	ł	ł	!		}	ł	;	ł
\$\begin{array}{c ccccccccccccccccccccccccccccccccccc	56	98.0	23	1.62	35	0.88	28	0.74	7	g	4	8
\$\begin{tabular}{c ccccccccccccccccccccccccccccccccccc	1	-	:	1	· ;	<b>.</b>	; ;	; ;	5	9	<u>o</u>	
10	31	0.31	53	1.62	35	88 0	20				1 :	1
12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10   12   12					*	70.7	09	7.74		0.08	9	0.20
12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10   10   10   10   10   10   10	1	1	24	0.31	7	0.37	;	}	v	9.	c	9
12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10   10     12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10     22   1.01   23   0.94   16   0.66   14   0.65   6   1.67   56     21   0.70     6   0.07   33   0.50   17   0.22   38     22   1.01   23   0.94   16   0.66   11   0.51   17   0.22   38     33   0.50   17   0.22   38     34   0.50   17   0.22   38     35   1.60   14   0.35   13   0.50   27     36   1.47   25   0.77   15   0.37   17   0.50   13   0.50   20     31   0.55   4   0.09     7   0.33   0   0.00   25     32   1.64   21   0.80   21   0.38   24   0.79   13   0.50   20     34   1.00     38   1.00             36   1.00     38   1.00           36   1.00     38   1.00           30   0.24   23   1.80   13   0.35   5   0.32   25     31   20   0.85   19   0.58   13   0.44   12   0.35   5     32   1.00   0.85   19   0.58   13   0.44   12   0.35   12     35   36   37   37   37   37   37   37   37	ł	ł	ł	ł	1	: 1	ł	ļ	<b>-</b>	2	>	9.0
12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10     22   1.01   23   0.94   16   0.66   14   0.65   6   1.67   56     21   0.70       6   0.07   33   0.50   17   0.22   38     22   1.01   23   0.94   16   0.66   14   0.65   6   1.67   56     23   1.5   0.82   17   0.68   14   0.61   11   0.51   12   0.40   12     24   1.47   25   0.77   15   0.37   17   0.50     8     25   1.87   18   0.80   21   0.38   24   0.79   13   0.50   27     26   27   25   0.77   15   0.37   17   0.50     8     27   1.64   21   0.80   21   0.38   24   0.79   13   0.50   25     28   17   0.29   9   0.29   23   1.80   14   0.35   6   0.33       20   0.48   9   0.24   23   1.80   13   0.35   5   0.32   25     20   0.85   19   0.58   13   0.44   12   0.35   5   0.32   25     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   12     20   0.85   19   0.58   13   0.44   12   0.35   0.50   10     20   0.85   19   0.85   13   0.80   14   0.55   0.55   0.55   0.55     20   20   20   20   20   20   20	;	1	ŀ	1	ł	ł	ł	ļ		<b>!</b>	ł	<b>¦</b>
12   0.71   16   0.66   12   0.59   10   0.48   9   0.50   10   10   10   10   10   10   10	1	1	1	ł	ſ	ŀ	1		ł	<b>!</b>	!	!
22 1.01 23 0.94 16 0.66 14 0.65 6 1.67 56 1.01 21 0.70	12	17.0	91	99.0		5.0		9		1 8	:	1 :
22 1.01 23 0.94 16 0.66 14 0.65 6 1.67 56 21 0.70	ŀ	ł	ŀ	:				P I		20.00	2	<b>⊔.</b> 33
21         0.70          -         6         0.07         33         0.50         17         0.22         38           15         0.82         17         0.68         14         0.61         11         0.51         12         0.40         12           19         1.47         25         0.77         15         0.37         17         0.50           8           21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         27           9ion         21         0.55         4         0.09          -         7         0.33         0         0.00         25           17         0.29         9         0.29         23         1.80         14         0.35         6         0.33         -           20         0.48         9         0.24         23         1.80         13         0.35         5         0.32         25	22	1.01	23	0.94		99.0		1 45		5	! 8	1 2
sgion         15         0.85         17         0.68         14         0.61         11         0.51         12         0.40         12           19         1.87         18         0.84         11         0.40         38         1.50         13         0.50         27           19         1.47         25         0.77         15         0.37         17         0.50         27           21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         20           21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         20           21         0.55         4         0.09         21         0.38         24         0.79         13         0.50         20           17         0.29         9         0.29         23         1.80         14         0.35         6         0.33         -         -           20         0.48         9         0.24         23         1.80         13         0.35         5         0.32         25         0           20 <t< td=""><td>21</td><td>0.70</td><td>;</td><td>. 1</td><td></td><td>0.07</td><td></td><td>2 2</td><td></td><td>9.6</td><td>ន</td><td>5.5 5.1</td></t<>	21	0.70	;	. 1		0.07		2 2		9.6	ន	5.5 5.1
sqion         15         0.82         17         0.68         14         0.61         11         0.51         12         0.40         12           22         1.87         18         0.84         11         0.40         38         1.50         13         0.50         27           19         1.47         25         0.77         15         0.37         17         0.50         27         8           21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         20           21         0.55         4         0.09         21         0.38         24         0.79         13         0.50         20           17         0.29         9         0.29         23         1.80         14         0.35         6         0.33         -         -           20         0.48         9         0.24         23         1.80         13         0.35         5         0.32         25         0           20         0.85         19         0.58         13         0.44         12         0.35         5         0.32         25         0 </td <td>ł</td> <td>+</td> <td>ł</td> <td>ł</td> <td></td> <td></td> <td></td> <td>}  </td> <td></td> <td>77.6</td> <td>o o</td> <td>- / · o</td>	ł	+	ł	ł				}		77.6	o o	- / · o
22     1.87     18     0.84     11     0.40     38     1.50     13     0.50     27       19     1.47     25     0.77     15     0.37     17     0.50     27     8       21     1.64     21     0.80     21     0.38     24     0.79     13     0.50     20       21     0.55     4     0.09     21     0.38     24     0.79     13     0.50     20       21     0.55     4     0.09     23     1.80     14     0.35     6     0.33     0     0       17     0.29     9     0.29     23     1.80     14     0.35     6     0.33         20     0.48     9     0.24     23     1.80     13     0.35     5     0.32     25     0       20     0.85     19     0.58     13     0.44     12     0.30     13     0.35     15     0.32     25     0	15	0.82	17	0.68	ľ	19.0		2	2		1 5	
22 1.87 18 0.84 11 0.40 38 1.50 13 0.50 27 19 1.47 25 0.77 15 0.37 17 0.50 8 21 1.64 21 0.80 21 0.38 24 0.79 13 0.50 20  21 0.55 4 0.09 7 0.33 0 0.00 25 17 0.29 9 0.29 23 1.80 14 0.35 6 0.33 0 20 0.48 9 0.24 23 1.80 13 0.35 5 0.32 25 0 20 0.85 19 0.58 13 0.44 12 0.30 13 0.50 25									2	n .	7	0.3/
22 1.87 18 0.84 11 0.40 38 1.50 13 0.50 27 19 1.47 25 0.77 15 0.37 17 0.50 8 21 1.64 21 0.80 21 0.38 24 0.79 13 0.50 20  21 0.55 4 0.09 7 0.33 0 0.00 25 17 0.29 9 0.29 23 1.80 14 0.35 6 0.33 0 20 0.48 9 0.24 23 1.80 13 0.35 5 0.32 25 0 20 0.85 19 0.58 13 0.44 12 0.30 13 0.50	1	ł	ł	ł	ł	ł	ł	}				
19         1.47         25         0.77         15         0.37         17         0.50         27         27           gion         21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         20           gion         21         0.55         4         0.09           7         0.33         0         0.50         20           17         0.29         9         0.29         23         1.80         14         0.35         6         0.33          0           20         0.48         9         0.24         23         1.80         13         0.35         5         0.32         25         0           20         0.85         19         0.58         13         0.44         12         0.36         13         0.35         5         0.32         25         0	22	1.87	82	0.84		07.40		5		5	! 8	1 8
21         1.64         21         0.80         21         0.38         24         0.79         13         0.50         20           21         0.55         4         0.09           7         0.33         0         0.50         25           17         0.29         9         0.29         23         1.80         14         0.35         6         0.33   <	19	1.47		0.77		147		3 5		90.		S :
21     0.55     4     0.09      7     0.33     0     0.00     25       17     0.29     23     1.80     14     0.35     6     0.33                  20     0.48     9     0.24     23     1.80     13     0.35     5     0.32     25       20     0.85     19     0.58     13     0.44     12     0.30     13     0.32     25	21	1.64		0.80		38		2 2	:   :			0.23
21 0.55 4 0.09 7 0.33 0 0.00 25 17 0.29 9 0.29 23 1.80 14 0.35 6 0.33 38 1.00 20 0.48 19 0.58 13 0.44 12 0.39 13 0.35 5								27.73	2	0.50	20	1.41
17     0.29     9     0.29     23     1.80     14     0.35     6     0.33                    20     0.48     9     0.24     23     1.80     13     0.35     5     0.32     25       20     0.85     19     0.58     13     0.44     12     0.30     13     0.35     13		0.55		0.09	ı	ł		23		8		i
20     0.48     9     0.58     13     0.44     12     0.33     25		0.29		0.29	23	80		3. 5.		3 8		
20     0.48     9     0.24     23     1.80     13     0.35     5     0.32     25       20     0.85     19     0.58     13     0.44     12     0.30     13     0.31     13	1	1	1	1	}	: 1		3 1		?		54.0
20 0.48 9 0.24 23 1.80 13 0.35 5 0.32 25 20 0.85 19 0.58 13 0.44 12 0.30 13 0.31	ŀ	;		1.00	1	;	ļ	۱	<b>;</b>	1	l	1
20 0.85 19 0.58 13 0.44 12 0.30 13 0.35 53	ı	0.48		0.24		.80		35		1 6		
		0.85		0.58		44		3 6		0.36		
				2 0.50 15 2 0.35 13 2 0.35 13 3 0.47 15 3 0.06 4 0.97 5 0.86 53 6 0.86 53 7 0.70 7 0.82 17 7 0.59 9 7 0.55 4 7 0.59 9 7 0.55 4 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9 7 0.55 9	2 0.50 15 2 0.35 13 2 0.35 13 4 0.59 15 4 0.06 1 0.31 53 0.71 16 0.71 16 1.01 23 0.70 1.87 18 (17) 16 0.29 9 (2) (18) 16 1.64 21 (18) 16 1.64 21 (18) 16 1.64 21 (18) 16 1.64 21 (18) 18 1.64 4 (18) 18 1.67 18 18 (18) 18 1.68 18 18 18 (18) 18 1.68 18 18 18 18 (18) 18 (1	2 0.50 15 0.38 9 9 15 0.35 13 0.34 16 0.59 15 0.35 13 0.34 16 0.69 15 0.38 9 9 0.77 15 0.38 9 9 0.77 15 0.38 9 9 0.29 23 1 0.29 9 0.29 23 1 0.69 15 0.39 15 0.39 15 0.39 16 0.39 16 0.39 16 0.39 16 0.39 16 0.39 17 15 0.39	2 0.50 15 0.38 9 9 15 0.35 17 16 0.47 5 1 16 0.47 5 1 16 0.47 5 1 16 0.47 5 1 16 0.47 5 1 16 0.47 16 1 16 1 16 1 16 1 16 1 16 1 16 1 16	2 0.50 15 0.38 9 0.31 5 2 0.35 13 0.34 16 0.46 6 3 0.35 13 0.34 16 0.46 6 4 0.59 15 0.38 9 0.27 7 1 0.05 15 0.38 9 0.31 5 10 0.47 15 0.18 12 10 0.47 15 0.18 12 10 0.47 15 0.18 12 10 0.47 15 0.18 12 10 0.47 15 0.38 9 0.27 7 10 0.35	2 0.50 15 0.38 9 0.31 5 2 0.35 13 0.34 16 0.46 6 3 0.47 5 0.13 4 0.59 15 0.35 7 0.18 12 4 0.59 15 0.35 7 0.18 12 5 0.31 53 1.62 35 0.88 28 6 0.71 16 0.66 12 0.59 10 6 0.71 16 0.66 12 0.59 10 6 0.72 18 0.84 11 0.40 38 1 1.64 21 0.80 21 0.38 24 0 6 0.55 4 0.09 6 0.55 1.64 23 1.80 14 0 6 0.55 0.77 15 0.38 1.80 14 0 6 0.55 0.77 15 0.38 1.80 14 0 6 0.59 0.29 23 1.80 14 0 6 0.59 0.29 23 1.80 13 0.44 12 0 6 0.59 1.60 1.80 1.80 1.80 1.80 1.80 1.80 1.80 1.8	2 0.50 15 0.38 9 0.31 5 0.14 111 2 0.35 13 0.34 16 0.46 6 0.19 18 2 0.35 13 0.34 16 0.46 6 0.19 18 3 0.35 13 0.34 16 0.46 6 0.19 18 4 0.59 15 0.35 7 0.18 12 0.21 9 9 0.27 7 0.16 111 1 0.35	2 0.50 15 0.38 9 0.31 5 0.14 111 2 0.35 13 0.34 16 0.46 6 0.19 18 2 0.35 13 0.34 16 0.46 6 0.19 18 3 0.35 13 0.34 16 0.46 6 0.19 18 4 0.59 15 0.38 9 0.21 7 0.16 11 4 0.05	2         0.50         15         0.38         9         0.31         5         0.14         11         0.29         7           2         0.55         15         0.34         16         0.46         6         0.19         18         0.29         7           2         0.55         13         0.34         16         0.46         6         0.19         18         0.80         7           2         0.55         15         0.35         7         0.18         12         0.21         9         0.13         11           4         0.59         15         0.35         7         0.18         12         0.21         9         0.13         11           1         0.37         1         0.18         12         0.27         7         0.16         11         0.23         2           1         0.37         1         0.37         1         0.27         1         0.16         11         0.23         18           1         0.37         1         0.18         28         0.74         24         0.68         16           1         0.31         14         0.37         1         <

# MIGRATORY UPLAND GAME BIRDS

## **SUMMARY**



## **Mourning Doves**

The breeding density index increased in 1988, but remained below average.

Harvest statistics derived from the questionnaire showed the same number of hunters, but decreased harvest compared to 1987. Hunter success for the season decreased 12 percent.

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

Aging of wings indicated the juvenile per 100 adult ratio decreased to 100 compared to 137 in 1987, and the 21-year average of 116. Either production was down or juvenile doves migrated earlier than previous years.

## **Band-tailed Pigeons**

Banding of band-tailed pigeons was discontinued in 1979, as a result of recommendations by the Four-Corners Band-tailed Pigeon Study Committee.

Only 29 hunters participated in 1988. Total harvest is unknown but is probably less than 100 birds.



#### MOURNING DOVE

#### Call Count Survey

Results of the 1988 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 Fish and Wildlife Service. However, indicated trends are similar (Figure 1). The following is a comparison of the results of the 1988 survey to 1987 and the average for the period 1964-1987:

		<u>Percent</u>	<u>change from</u>
	<u>1988</u>	1987	<u>Average</u>
Average doves heard per route	9.4	+6	-28
Average calls heard per route	42.4	+17	-23
Average doves seen per route	18.5	+95	+30

Coo count data indicated increased breeding activity in late May compared to 1987, but was 28 percent below the long-term average of 13 doves heard per route.

#### Harvest

#### **Hunter Questionnaire**

Information obtained from the hunter questionnaire for 1988 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 Figure 2,3. The following is a comparison of the harvest statistics for 1988 compared to 1987 and the 12-year (1976-87) average:

	<u>Percent</u>	change from
<u>1988</u>	<u>1987</u>	<u>Average</u>
22,457	0	-24
178,469	-13	-38
76,219	-15	-26
2.34	+3	-16
7.95	-12	-17
	22,457 178,469 76,219 2.34	1988 1987  22,457 0 178,469 -13 76,219 -15 2.34 +3

An increase in dove hunter success was predicted due to a 6 percent increase in the spring dove call count index. We predicted 20,000 hunters, 200,000 harvest and 90,000 hunter days. Hunter success decreased slightly. Total harvest decreased 13 percent compared to 1987. Numbers of dove hunters,

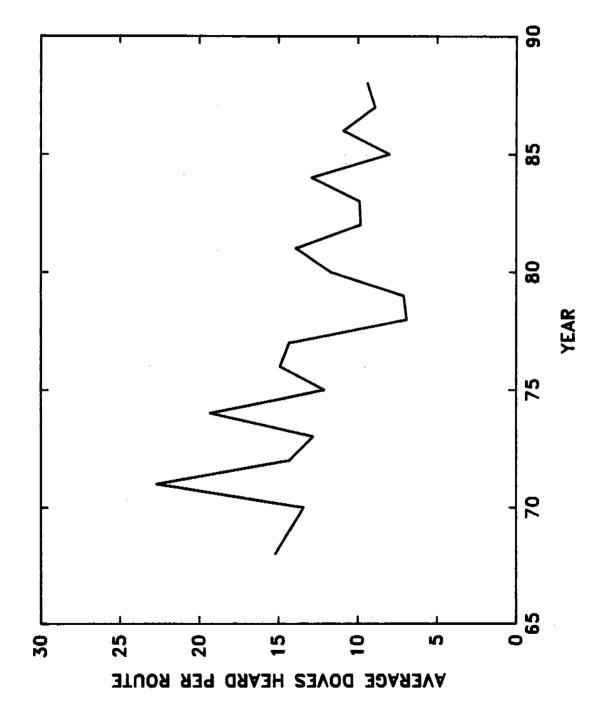
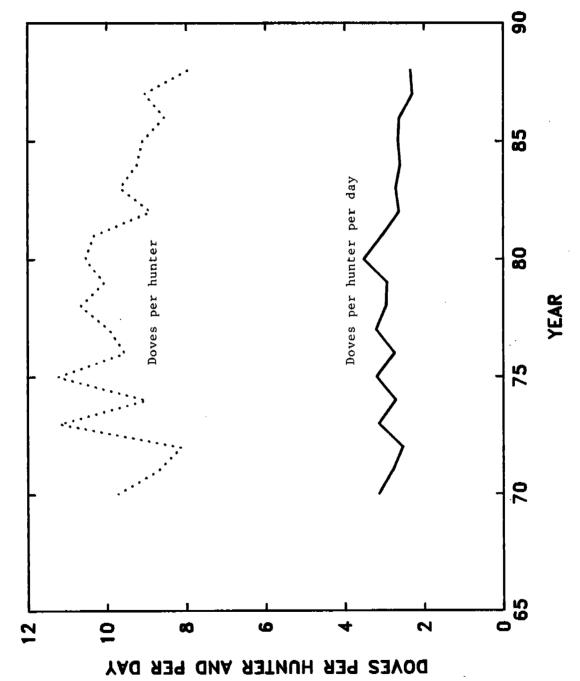


Figure 1. Mourning Dove breeding density index trend, 1968-88.

Figure 2. Statewide trends of mourning dove harvest statistics.



Statewide trends of mourning dove hunter success rates, 1968-88. Figure 3.

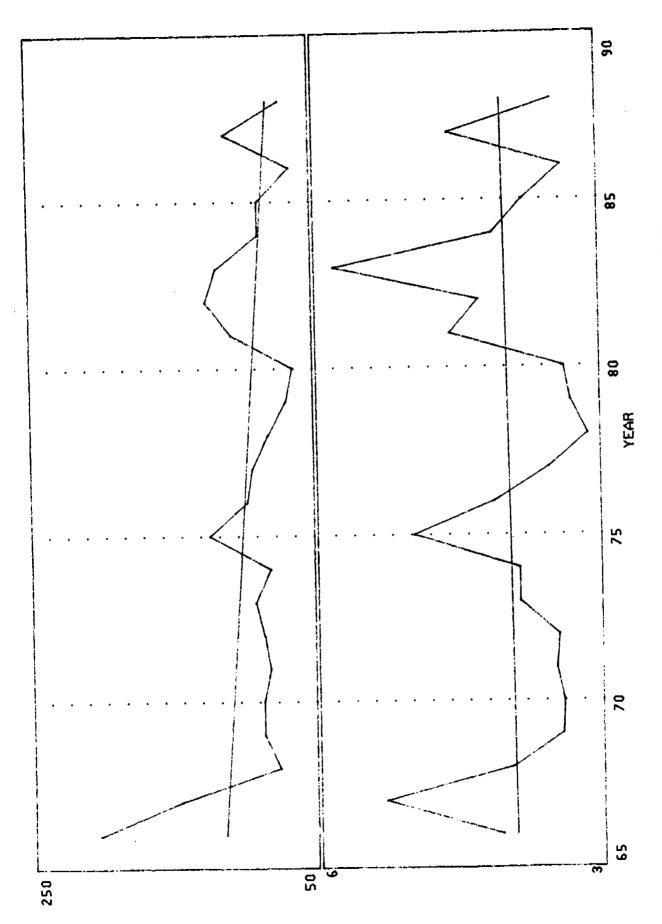


Figure 4. Statewide dove field bag check indices, 1966-88.

hunter-days afield and doves per hunter-day were significantly below the 12-year average. Decreased success seemed to be due to factors other than weather. May through August were dryer and warmer than normal. However, on August 26, heavy thunderstorms in central and southern Utah dropped up to two inches of rain and caused some flooding. Precipitation in August was normal or below normal in major dove concentration areas. A cold front that moved into Utah on the 15th produced some low nighttime temperatures on the 16th.

Long-term harvest trends are depicted in Figure 2.

### Field Bag Checks

A summary of field bag check data for 1988 is shown in Table 8. Hunter success trends determined via this method are shown in Table 9. Results of the 1988 survey compared to 1987 and the 10-year average (1978-87) follow:

		Percent	change from
	<u>1988</u>	<u> 1987</u>	<u>Average</u>
Total hunters checked	1,176	-22	-47
Total hours hunted	4,550	-11	-49
Doves per hunter (complete hunts)	3.05	-30	-18
Doves bagged per 100 hours	66	-34	-23
Average hours per hunter-day			
(complete hunts)	4.3	+10	+8
Hours hunted per dove bagged	1.4	+56	+27

September 1, 1988 was a Thursday rather than a Saturday or Sunday, so one would expect less hunter participation. Hunt conditions were good on opening day with dry and warm weather. Hunter participation should have been about the same as last year's Tuesday opening. Field bag checks indicated a decrease in hunter success. This agrees with the questionnaire results which indicated a decrease in hunter success. This might indicate that opening day success was worse than last year and the 10 year average. The total number of hunters checked was down 22 percent from 1987. Dove hunters spent more time afield per hunter-day than in 1987, and more time was spent per dove bagged, according to field bag check data.

# Age Composition of the Harvest

A summary of the age composition of harvested mourning doves from 1978 through 1988 is contained in Table 10. Hatching dates for immature doves harvested in the Northern Region since 1978 are shown in Table 11. Hatching dates for immature doves harvested in Utah in 1988 are shown in Table 12.

Following is a comparison of data collected in 1988 to 1987 and long-term averages (1966-87):

	<u>1988</u>	<u>Percent</u> 1987	change from Average
Sample size	1,641	-54	-51
Immatures/100 adults	100	-27	-14
Percent of immatures hatched on:	(N. Region)		
August 3 or later			
July 25 or later			
Before July 25			

Sample size was down by half because the Northern Region either did not collect, analyze, or report wing results. The 100 immatures per 100 adults indicated a worse hatch compared to the previous 22-year average.

Table 1. Summary of the mourning dove call-count survey for 1988.

Region and	Route	Total Doves	Total Calls	Total Doves
County	Number	<u> Heard Per Route</u>	<u>Heard Per Route</u>	Seen Per Route
Northern Region				
Summit	R1020	5	14	0
Box Elder	R1500	00	O	. 9
REGIONAL TOTALS		5	14	9
<u>Central Region</u>				,
Juab	R2830	23	151	4
REGIONAL TOTALS	·	23	151	4
Southern Region				<u> </u>
Sevier-Sanpete	R0370	3	7	15
Wayne-Sevier	R0660	3	11	. 0
Garfield	R1090	0	0	Ŏ
Millard	R3640	. 5	8	5
Beaver	R3820	13	69	18
Iron	R4000	20	84	3
Washington	R4310	1	3	Õ
REGIONAL TOTALS		45	182	41
Northeastern Region		·		<del></del>
Duchesne	R0080	8	23	0
Uintah	R0220	6	20	13
REGIONAL TOTALS		14	43	13
Southeastern Region		****		
Emery	R0540	15	72	6
San Juan	R1171	37	163	204
San Juan	R1450	2	11	0
REGIONAL TOTALS		54	246	210
STATE TOTALS		141	636	277
STATE AVERAGE		9.4	42.4	18.5
PERCENT CHANGE	· vi			· · · · ·
(from previous year)		+5.6	+17.1	+94.7

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, 1976—88. Table 2.

Region and	Route			2	Number of	Doves	Heard Po	Per Route	d					
County	Number	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region														
Summit	R1020	=	2	ιC	9	ഹ	4	ഹ	I	-	4	ß	æ	тO
Box Elder	R1500	-	4	2	6	4	8	1	-	0	0	-	2	0
REGIONAL TOTALS		12	14	7	15	6	12	2	-	-	4	9	2	2
Central Region														
Juab	R2830	28	25	33	15	31	22	6	25	19	20	19	16	23
REGIONAL TOTALS		28	25	31	15	31	22	6	22	19	20	19	16	23
Southern Region														
Sevier-Sanpete	R0370	0	2	0	0	m	0	0	m	ß	4	4	က	ო
Wayne-Sevier	R0660	ഹ	∞	-	7	r.	14	4	ł	11	က	7	0	ო
Garfield	R1090	ന	-	0	0	0	6	7	ო	15	က	_	-	0
Millard	R3640	9	53	æ	4	7	2	6	Ŋ	7	7	7	က	ഹ
Beaver	R3820	0	0	0	ιΩ	0	٢	13	ო	ø	9	4	17	13
Iron	R4000	45	23	75	7	\$	36	12	5	33	4	56	23	20
Washington	R4310	19	15	-	4	~	9	0	14	-	0	9	7	-
REGIONAL TOTALS		78	82	22	29	29	85	49	47	88	53	45	25	45
Northeastern Region														
Duchesne	R0080	Ξ	7	7	7	_	13	7	0	-	œ	ო	4	80
Uintah	R0220	27	7	4	1	49	19	_	6	10	5	20	12	9
REGIONAL TOTALS		38	21	9	2	20	32	80	6	ו	13	23	16	14
Southeastern Region														
Emery	R0540	7	4	2	σ	7	25	7	Ξ	2	ო	2	=	5
San Juan	R1170	5	<i>L</i> 9	24	28	4	38	56	30	27	52	9	31	37
San Juan	R1450	2	_	9	-	<b>~</b>	9	24	2	7	2	0	-	2
REGIONAL TOTALS		29	72	37	38	24	09	57	46	74	30	70	43	54
STATE TOTALS		223	214	103	66	176	208	128	128	194	120	163	134	141
STATE AVERAGES		14.9	14.3	6.9	11	11.7	13.9	9.8	9.9	12.9	8.0	10.9	8.9	9.4
PERCENT CHANGE (from previous year)		+23	4	-52	ę	+65	+18	-38	0	+30	-38	+36	8 <u>-</u> 1	9
		}												

\*Automatic zero.

Table 3. Summary of mourning dove hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Samp1e	Hunter-days	Birds	Birds per	% of	% of
County	<u>Size*</u>	<u> Afield</u>	Bagged	Hunter-day	Pressure	Harves
Northern Region						_
Box Elder	148	5,392	18,416	3.41	7.07	10.31
Cache	64	2,738	5,259	1.92	3.59	2.94
Davis	59	3,873	5,843	1.51	5.08	3.27
Morgan	10	467	1,101	2.36	.61	.61
Rich	13	450	1,185	2.63	.59	.66
Summit	6	534	1,168	2.19	.70	.65
Weber	75	5,426	6,561	1.21	7.11	3.67
REGIONAL TOTALS	375	18,883	39 537	2.09	24.77	22.15
<u>Central Region</u>						
Juab	134	4,441	14,442	3.25	5.82	8.09
Salt Lake	83	4,240	7,814	1.84	5.56	4.37
Sanpete	63	2,788	7,680	2.75	3.65	4.30
Tooele	154	8,448	19,501	2.31	11.08	10.92
Utah	306	14,626	28,868	1.97	19.18	16.17
Wasatch	15	1,352	1,619	1.97	1.77	.90
REGIONAL TOTALS	755	35,897	79,926	2.23	47.09	44.78
Southern Region				2105	<del>-,, , , , , , , , , , , , , , , , , , ,</del>	
Beaver	19	901	3,155	3.50	1.18	1.76
Garfield	2	116	450	3.86	.15	.25
Iron	22	1,552	5,760	3.71	2.03	3.22
Kane	5	350	601	1.71	.46	.33
Millard	132	6,945	20,937	3.01	9.11	11.73
Piute	6	200	834	4.17	.26	.46
Sevier	58	3,155	6,411	2.03		
Washington	11	584	1,970	3.37	4.14	3.59
Wayne	3	116	1,970 267		.76	1.10
REGIONAL TOTALS	258	13,924	40,389	2,29	.15	.14
Northeastern Region	238	13,724	40,369	2.90	18.26	22.63
Daggett	1	50			0.0	
Duchesne	19	801	2,270	2 02	.06	
Uintah	34	1,636	•	2.83	1.05	1.27
REGIONAL TOTALS	<u>54</u>		4,391	2.68	2.14	2.46
Southeastern Region	54	2,487	6,661	2.68	3.26	3.73
Carbon	24	7 450	2 000	2.06	3 00	
		1,452	2,988	2.06	1.90	1.67
Emery Grand	43	2,304	6,611	2.87	3.02	3.70
San Juan	4	166	333	2.00	.21	.18
REGIONAL TOTALS	<u>6</u> 77	367	1.068	2.91	.48	.59
VEGIONAL INTALS		4,291	11,003	2.56	5.62	6,16
Unknown Counties	6	734	951	1.30	.96	.53
STATE TOTALS	1,525	76,219	178,469	2.34	100.00	100.00

<sup>\*</sup>Total hunter trips from questionnaire returns.

Table 4. Summary of mourning doves bagged per hunter-day by region and county, 1981-88.

Region and				Year	<u>-</u> <u>-</u>			
County	1981	1982	1983	1984	<u> 1985 </u>	1986	<u> 1987</u>	1988
<u>Northern Region</u>								
Box Elder	3.04	3.74	3.50	3.19	2.18	3.18	3.46	3.41
Cache	2.83	2.16	2.48	2.05	2.34	1.92	1.79	1.92
Davis	1.59	1.52	1.32	1.66	1.53	1.24	1.18	1.51
Morgan	2.73	4.78	2.65	1.91	1.72	2.04	3.00	2.36
Rich	3.00	1.57	3.08	6.69	2.28	3.72	0.00	2.63
Summit	3.19	2.34	2.08	3.89	1.92	1.08	2.50	2.19
Weber	2.18	1.93	1.81	1.55	1.68	1.63	1.15	1.21
REGIONAL TOTALS	2.57	2.50	2.43	2.27	1.92	2,26	2.19	2.09
Central Region								
Juab	3.82	3.64	5.35	4.44	5.16	4.54	2.95	3.25
Salt Lake	2.65	1.89	2.14	1.95	1.91	1.95	1.36	1.84
Sanpete	3.23	2.48	3.64	2.98	2.71	3.51	1.88	2.75
Tooele	2.30	2.54	2.74	2.90	2.55	2.87	2.17	2.31
Utah	2.96	2.10	2.10	2.21	2.50	2.14	2.30	1.97
Wasatch	1.46	1.39	0.83	2.20	1.50	1.97	0.82	1,20
REGIONAL TOTALS	2.86	2.33	2.64	2.60	2.71	2.72	2.11	2.23
Southern Region								
Beaver	4.86	4.78	5.62	3.45	3.43	2.02	1.72	3.50
Garfield	4.02	4.15	3.07	1.80	0.60	0.20	1.67	3.86
Iron	4.42	3.24	3.60	3.07	4.99	3.54	3.10	3.71
Kane	4.71	2.50	4.38	5.76	2.54	1.06	3.06	1.71
Millard	4.11	4.49	4.63	4.25	4.30	3.58	2.83	3.01
Piute	4.05	0.63	1.65	1.94	1.60	1.62	1.67	4.17
Sevier	2.30	2.51	2.73	2.11	2.33	1.82	2.15	2.03
Washington	4.19	2.92	4.34	2.62	3.17	3.90	2.68	3.37
Wayne	3.76	2.56	2.50	2.00	2.47	2.57	5.65	2.29
REGIONAL TOTALS	3.85	3.49	3.80	3.22	3.53	2.85	2.62	2.90
Northeastern Region								
Daggett	1.00	2.33	1.34	1.48	0.00	1.20	0.83	0.00
Duchesne	3.76	3.09	2.79	1.83	2.50	2.70	2.46	2.83
Uintah	1.81	2.51	2.33	2.61	2,39	1.91	2.82	2.68
REGIONAL TOTALS	2.43	2.74	2.39	2,20	2.39	2.05	2.55	2.68
Southeastern Region								
Carbon	3.42	3.13	2.06	2.13	2.76	2.76	1.94	2.06
Emery	3.62	2.37	2.00	2.24	3.28	1.62	2.41	
Grand	4.12	2.99	2.85	2.46	2.00	4.28	2.41	2.00
San Juan	3.75	3.68	3.70	3.51	3.38	3.26	4.08	2.91
REGIONAL TOTALS	3 <u>.75</u>	2.99	2.41	2.41	3.01	2.54	2.76	2.56
Unknown Counties	0.64	1.56	7.20	0.00	0.00	0.00	1.93	1.30
STATE TOTALS	3.05	2.62	2.71	2.59	2.65	2.61	2.28	2.34

Table 5. Percentage distribution of mourning dove harvest by region and county, 1981-88.

Region and				Yea	r		<del></del>	
County	1981	1982	1983			1986	1987	198
Northern Region								
Box Elder	8.89	10.36	11.40	9.96	5,48	10.36	11.51	10.3
Cache	2.77	2.85	4.85	4.71				•
Davis	1.90	. 2.73	2.71		2.91			
Morgan	1.05	1.27	0.64	0.30	0.76			
Rich	0.23	0.26	0.54	0.77	0.55			
Summit	0.46	0.48	0.12	0.25	0.84			
Weber	3.37	5.67	4.31	3.57	4.21			
REGIONAL TOTALS	18.66	23.62	24.56	22.92	18.61			
<u>Central Region</u>					-	<u>-</u>		
Juab	6.99	7.97	8.93	9.42	10.97	11.09	8.36	8.09
Salt Lake	7.09	7.12	7.34	7.90	5.59	5.50		
Sanpete	2.59	2.65	3.44	3.49	4.08	5.54		
Tooele	5.31	8.27	9.46	8.67	7.42			
Utah	17.37	15.20	14.14	13.94	17.75	14.38		
Wasatch	0.78	0.58	0.24	0.86	0.98			
REGIONAL TOTALS	40.13	41.79	43.56		46.79			
Southern Region					, <u>-</u>			
Beaver	1.70	2.60	1.65	2.31	1.55	1.82	1.67	1.76
Garfield	1.54	1.17	0.90		0.02	0.01		
Iron	4.20	2.64	2.71	1.68	4.05	3.82		
Kane	1.36	0.11	0.84		0.28	0.30		
Millard	7.73	6.80	6.17	10.20	10.25	9.42		
Piute	1.03	0.03	0.41	0.45	0.56	0.19		
Sevier	2.91	3.37	3.23	3.98	3.24			
Washington	3.16	3.25	3.70	2.37	2.44			
Wayne	0.64	0.35			0.35			0.14
REGIONAL TOTALS	24.26	20.42	19.74		22.75	22.64		22.63
Northeastern Region		· <del>-</del>						
Daggett	0.12	0.15	0.21	0.42	0.00	0.16	0.12	0.00
Duchesne	2.40	2.30	1.53	0.99	1.42	1.05	0.76	1.27
Uintah	1.99	2.52	2.49		2.78			2.46
REGIONAL TOTALS	4.50	4.97	4.24		4.20	3.14		3.73
Southeastern Region								
Carbon	2.44	3.94	2.28	2.39	2.93	1.65	0.74	1.67
Emery	3.32	2.00	2.37	1.45	3.35	1.83	2.66	3.70
Grand	3.90	1.20	0.99	0.88	0.27	1.24		
San Juan	2.75	1.90	2.08	1.24	1.10	1.81		
REGIONAL TOTALS	12.40	9.04	7.73	5.97	7.65	6.54	6.80	6.16
Unknown counties	0.05	0.15	0.18	0.00	0.00	0.00	0.64	0.53
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, 1981-88.

Region and				Year				
County	1981	1982	1983	1984	1985	1986	1987	1 <u>988</u>
Northern Region								
Box Elder	8.91	7.25	8.84	8.10	6.68	8.50	7.59	7.07
Cache	2.98	3.46	5.29	5.97	4.37	3.34	3.81	3.59
Davis	3.65	4.69	5.57	5.24	5.04	4.38	3.75	5.08
Morgan	1.17	0.70	0.65	0.41	1.18	0.57	0.13	0.61
Rich	0.23	0.43	0.48	0.30	0.64	0.76	0.00	0.59
Summit	0.44	0.54	0.16	0.17	1.15	0.28	0.16	0.70
Weber	4.72	7.71	6.45	5.97	6.66	4.35	4,22	7.11
REGIONAL TOTALS	22.10	24.78	27.45	26.16	25.74	22,17	19.69	24.77
<u>Central Region</u>								
Juab	5.57	5.73	4.53	5.50	5.64	6.37	6.47	5.82
Salt Lake	8.16	9.90	9.30	10.51	7.75	7.36	9.02	5.52
Sanpete	2.44	2.80	2.57	3.04	4.00	4.12	3.51	3.65
Tooele	7.05	8.52	9.39	7.76	7.73	10.36	8.99	11.08
Utah	17.90	18.92	18.28	16.38	18.88	17.53	19.93	19.18
Wasatch	1.63	1.08	0.78	1.01	1.73	0.69	1.70	1.77
REGIONAL TOTALS	42.76	46.95	44.85	44.21	45.73	46.43	49.64	
Southern Region						•		
Beaver	1.06	1.48	0.80	1.74	1.20	2.34	2.22	1.18
Garfield	1.17	0.74	0.80	0.37	0.11	0.12	0.16	0.15
Iron	2.90	2.13	2.05	1.42	2.15	2.82	2.38	2.03
Kane	0.88	0.11	0.52	0.63	0.29	0.73	0.49	0.46
Millard	5.74	3.97	3.62	6.23	6.33	6.86	7.89	9.11
Piute	0.77	0.11	0.68	0.60	0.93	0.31	0.32	0.26
Sevier	3.86	3.51	3.20	4.89	3.69	4.99	4.96	4.14
Washington	2.30	2.92	2.31	2.35	2.04	2.18	1.94	0.76
Wayne	0.52	0.35	0.13		0.38	0.33		0.15
REGIONAL TOTALS	19.20	15.34	14.11	18.38	17.12	20,68		18.26
Northeastern Region	- " ""							
Daggett	0.35	0.17	0.42	0.75	0.07	0.35	0.32	0.06
Duchesne	1.94	1.95	1.49	1.40	1.51	1.02	0.71	1.05
Uintah	3.34	2.63	2.90	2.65	3.09	2.63		2.14
REGIONAL TOTALS	5.63	4.75	4.81	4.80	4.66	4.00		3.26
Southeastern Region								
Carbon	2.17	3.30	3.00	2.91	2.82	1.56	0.87	1.90
Emery	2.80	2.21	3.23	1.68	2.71	2.96	2.52	3.02
Grand	2.88	1.05	0.94		0.35	0.76	0.79	0.21
San Juan	2.23	1.35			0.87	1.44		
REGIONAL TOTALS	10.08	7.91	8.71	6,44	6.75	6.72	5,62	5.62
Unknown counties	0.23	0.26	0.07	0.02	0.00	0.00	0.76	0.96
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, 1951-88.

**	_Total	Total	Hunter-days	Doves Per	Doves Pe
Year	Hunters	Harvest	<u>Afield</u>	<u>Hunter-day</u>	<u> Hunter</u>
1951	3,007	20,448	4,455	A 50	6 00
1952	6,420	49,498	10,784	4.59	6.80
1953	9,887	75,636	17,797	4.59	7.71
1954	9,901	75,941	19,724	4.25	7.65
1955	9,653	79,444	19,724	3.85	7.67
1956	10,744	95,729	20,411	4.12	8.23
1957	11,298*	86,769*	18,620*	4.69	8.91
1958	11,853	85,934	•	4.66	7.68
1959	12,142	110,856	21,591	3.98	7.25
1960	12,440	108,477	24,911	4.45	9.13
1961	15,192	128,001	25,766	4.21	8.72
1962	14,663	144,826	33,434	3.89	8.42
1963	18,258		34,281	4.23	9.89
1964	19,829	162,769	40,490 E1 671	4.02	8.91
1965	18,710	193,538	51,671	3.75	9.76
1966	20,594	164,087	48,835	3.36	8.69
1967	25,161	212,696	60,608	3.51	10.33
1968	25,101	263,949	74,171	3.56	10.49
1969	29,131	207,922	70,186	2.96	8.28
1970	•	279,311	90,965	3.07	9.59
1971	23,908	232,469	73,984	3.14	9.72
1972	26,064	226,645	81,271	2.79	8.70
1973	29,341	238,354	94,046	2.53	8.12
1974	27,435	307,062	97,788	3.14	11.19
	34,021	306,076	112,967	2.71	9.00
1975 1976	37,378	420,308	131,312	3.20	11.24
	31,293	298,505	108,780	2.74	9.54
1977 1978	26,905	267,487	83,218	3.21	9.94
1978	35,985	383,696	130,173	2.95	10.66
	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
TOTALS		,			
(1951–88)	844,271	7 024 501	2 507 615	(100 44)	/6/= =··
(1976 <b>–</b> 87)	354,049	7,934,501 3,427,272	2,587,615	(129.44)	(345.54)
		3,741,414	1,224,917	(33.54)	(114.37)
AVERAGES					
(1951-88)	22,218	208,803	68,095	3.41	9.09
(1976–87)	29,504	285,606	102,076	2.80	9.53

<sup>\*</sup>Estimated.

<sup>\*\*</sup>Bag Limit increased to 15.
\*\*\*Bag Limit reduced to 10.

Table 8. Mourning dove field bag check summary, 1988.

		1					COME	COMPLETE LINEATO	31		
Region and	Total	Total	Total	Total	Birds/	Total Complete	Total	Total	Total	Ri rde/	Birde/
County	Parties	Hunters	Hours	Birds	100 Hr	Hunts	Hinters	House	910	2000	750110
Northern Region							2001	* Inon	2010	III III	חשחנפי
Box Elder	99	197	705	492	2	95	124	401	300	ā	,
Cache	7	33	109	2	17	3 -	<u>.</u>	<u>,</u>	960	5 5	3.6
Davis	æ	7	35	35	5			<b>.</b> u	•	ې د	5
Morgan	ł	ł	ł		: 1	' i	•	•	7	3	0.0
Rich	ł	ł	i	i	i	1	<b>!</b>	1	1	}	1
Summit		i	i		İ	1	1	1	l	1	!
Mahon.			1	1	1	}	1	1	1	1	1
weber					1	!	1	1	1	1	1
REGIONAL TOTALS	103	220	843	542	2	59	129	499	400	80	3.10
Central Region											
Juab	ł	!	1	1	1	}	1	}	1	ł	1
Salt Lake	1	1	ŀ	;	ł	1	1	ł	ł		
Sanpete	ļ	1	}	1	1	ł	1				ł
Tooele	1	i	}	ļ	ł	;	Ì	ł		1	1
Utah	1	1	ı	1	ł	1	}	i	1	I	
Wasatch	1	ì				ł	ł	1	}	1	ļ
DECIONAL TOTALS					ľ	!	1	}	1	1	1
Southern Doores	!		•		!	1	1	1	1	1	1
Reaver											
Garfield			1	ł	ł	ł	1	<b>¦</b>	!	•	1
	•	:	;	! ;	1 ;	ł	1	1	ŀ	;	!
Iron	4	7	2	<del>Z</del>	02	m	œ	15	20	167	2.50
Rane	1	1	}	1	!	!	1	1	ł	;	ł
Millard	2	175	493	461	2	\$	13	æ	7	175	1.08
Piute	1	1	1	ì	1	ł	1	}	1	: 1	
Sevier	5	49	169	220	130	2	C T	•	۶	111	90
Washington	=	23	54	68	165	uć:	· <u>~</u>	יא י	2	2 2	9 4
Wayne	1	1	-	ļ	1	۱ ا	? ¦	3 1	!	3	ř.
REGIONAL TOTALS	106	263	736	804	109	16	12	2	136	2	1 0
Northeastern Region							, 1		3		8
Daggett	-	-	0		ł	!	!	ł	ł	i	
Duchesne	က	S	15	9	<b>4</b>	ł	ł	ŀ	1		}
Uintah	-	3	6	2	Ξ		~		2	1 =	, ;
REGIONAL TOTALS	5	6	21	1	æ	-	~	-	2 5		5 6
Southeastern Region									2		2.33
Carbon	<b>6</b> 0	17	25	38	89	2	2	33	28	ä	5
Emery	4	92	99	4	7	-	ec	2 2	: :	3 5	90.7
Grand	1	1	}	1	1	۱ ۱	• 1	3	4	<u> </u>	₹. 6
San Juan	83	15	4	25	121	^	,	*		1 8	! ;
REGIONAL TOTALS	20	42	153	130	88	-	۾ او	5	9	3 3	9 6
LEHI CHECK STATION	197	435	1.870	824	4		300	37.6	8 5		3.40
NEPHI CHECK STATION*	1.9	17.1	921	5	5	! ?	20 5	1.2/4	12	2	5.19
CTATE TOTALS	900	25. 1	72.	000	3	25	10%	586	275	83	5.12
/ 4		-	250	000	4	```	9				

Table 9. Mourning dove hunter success trend determined by field bag checks, 1983-88.

	1983	83	19	1984	21	1985	19	1986	61	1987	61	1988
Region and	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/	Doves/
County	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
Northern Region												
Box Elder	128	5.61	<u>ē</u>	4.35	25	1.94	13	5.98	143	5.52	8	3.21
Cache	33	1.67	1	}	1	1	163	5.33	ł	1	0	0.0
Davis	75	2.00	911	2.42	1	1	ສ	2.74	2	1.20	33	0.50
Horgan	100	1.00	ł	!	1	1	1	}	1	1	1	ł
Rich	1	;	156	6.25	1	}	!	;	ŀ	1	1	1
Summit	1	1	1	1	1	}	ł	1	1	{	!	ł
Weber	214	3.00	182	6.20	ţ	;	ł	1	ł	1	!	ì
REGIONAL TOTALS	126	5.12	103	4.36	20	1.94	129	5.72	140	5.20	80	3.10
Central Region												
Juab	ł	1	1		1	;	68	4.30	1	;	1	ł
Salt Lake	19	1.40	ł	1	ł	1	333	3.33	1	1	ł	1
Sanpete	ł	1	}	ł	1	!	70	0.56	;	1	}	1
Tooele	133	3.33	ł	1	1	!	241	8.09	ł	1	1	ł
Utah	172	7.86	9	1.33	49	2.00	33	1.80	1	!	ł	ŀ
Wasatch	0	0.00	1	l	23	1.00	ł	1	1	!	1	1
REGIONAL TOTALS	122	3.90	62	1.33	7	1.63	75	3.84	1	!	1	1
Southern Region												
Beaver	1	1	88	8.36	ł	ł	224	9.52	131	5.75	1	1
Garfield	1	1	ł	1	1	!	ł	1	1	1	1	1
Iron	1	1	1	1	720	14.00	200	10.00	550	1.00	167	2.50
Kane	35	6.13	1	!	!	1	180	5.65	1	l	ł	1
Millard	113	8.03	<u>.</u>	4.85	300	9.00	172	6.20	64	2.75	175	1.08
Piute	1	1	ł	1	l	1	1	1	1	1	1	ł
Sevier	1	1.83*	1	2.15*	75	1.50	}	1	1	1	333	10.00
Washington	236	17.7	1	}	ł	;	343	98.9	ł	1	506	5.54
Wayne	}	ļ	-	1	1	;	1	-	ł	;	1	ł
REGIONAL TOTALS	148	6.80	94	6.09	397	7.94	203	6.41	126	5.23	213	3.68
Northeastern Region												
Daggett	}	1	1	ţ	1	1	23	<u></u>	1	1	}	ŀ
Duchesne	19	1.60	135	3.45	2,300	11.00	90	1.00	1	١.	1	1
Uintah	146	2.11	20	0.94	200	15.00	124	2.38	11	3.33	=	3.33
REGIONAL TOTALS	108	1.93	3	1.93	925	12.33	87	1.61	Ξ	3.33	Ξ	3.33
Southeastern Region												
Carbon	183	2.20	750	9.38	103	10.33	177	3.65	ŀ	ł	82	2.80
Emery	193	5.80	428	15.00	182	3.50	233	3.50	641	7.05	139	4.00
Grand	1	1	ł	1	1	;	}	1	;	1	1	;
San Juan	566	11.33	188	4.45	200	4.00	261	5.64	397	7.38	200	4.00
REGIONAL TOTALS	231	5.74	358	7.33	150	4.36	215	4.43	485	7.22	113	3.40
NEPHI CHECK STATION	155	7.40	26	2.61	167	7.47	33	1.68	114	5.09	68	5.12
LEHE CHECK STATION	83	5.14	135	6.50	. 62	2.37	S	2.39	78	3.23	50	2.19
STATE TOTALS	113	5.76	87	3.80	87	3.42	64	2.94	110	4.33	=	3.05
Aurilla . Aurilla		-	:							, , , , , , , , , , , , , , , , , , ,		***

Table 10. Age composition (Immatures/100 Adults) of mourning doves harvested, 1979-88.

Table 10. Age composi	tion (Immatu	res/100 Adul	Age composition (Immatures/100 Adults) of mourning doves markes.	Ing doves no	i kesteat ivi				5001	1089	1978-87 Avg.
	1070	1980	1981	1982	1983	1984	1985	1986	1961	1000	1/1004 (n)
Region and	1/100A (n)	1/100A (n)	I/100A (n)	I/100A (n)	1/100A (n)	I/100A (n)	I/100A (n)	I/100A (n)	I/100A (n)	1/100M (II)	- / HAM (11/
Samon .								•			
Northern Region	((101)	191 / 1464)	(002) 201	124 (716)	143 (515)	135 (1172)	146 (137)	131 (1086)	_	1	
Box Elder	_	(666) 171				ł	181 (45)	ļ	325 (17)	ì	
Cache		_	1	(55)		121 (42)	_	}	ł	ł	
Davis	71 (65)	169 (43)	<b>!</b>			ì	1	1	ł	1	
Morgan	ŀ	1	}	ŀ		62 (23)	(2)	l	1	1	
Rich	92 (25)	1	٠ ا	4,200 (45)	1		ļ	1	1	ŀ	
Summit	<b>\</b>	1	ł	<b>!</b>	i			1	;	ł	
	190 (29)	1	1	1	-1		100 (442)	(9801) 101	132 (787)	1	122 (972)
TOTALS	86 (1423)	124 (1610)	107 (700)	135 (815)	143 (617)	133 (1237)	138 (443)	1	135,4 36,1		
Control Bosion										;	
TAILED NEW TOTAL	. !	١	ł	ł	1	1	l	1	ł		
Juab	<b>!</b>		ł	ļ	1	1	1	}	1	ł	
Salt Lake	<b>¦</b>	ŀ	; !	}	ł	}	ł	1	}	<b>\</b>	
Sanpete		ì	į	(1117)	}	1	1	1	1	1	
Tooele	84 (103)		(17) 8/		}	}	ł	1	ŀ	1	
Utah	80 (1823)	45 (29)	1	(35) 001	<b> </b>	i	l	1	-	1	
Wasatch	1	1	ij	1				   	;	1	888) 18
REGIONAL TOTALS	81 (1926)	95 (125)	78 (71)	89 (169)	1	!	} }				
Southern Region						1	1	ł	1	1	
Beaver	1	1	1	ł		!	ł	1	1	<b>!</b>	
Garfield	1	1	!	1	<b>!</b>	}	,	ŀ	1	١	-
Tron	1	l	1	}	ŀ	1	<b>;</b>		1	1	
: 00 m	1	1	1	1	1	1	ţ	ļ i	}	;	
DION	1	;	ł	ŀ	;	l	1	!	<b>!</b>		
Millard	Ì	;	ł	1	1	1	1	١	ļ	<b>;</b>	
Piute	<b>¦</b>	•	}	1	1	1	1	1	1	1	
Sevier	!	<b>!</b>	, !	!	+	1	ł	i	1	1	
Washington	!	1	!		ļ	ŀ	1	-		1	
Wayne	1	1	!				1	<b>;</b>	l	1	
REGIONAL TOTALS	1	1			!						
Northeastern Region								1	ļ	ł	
Daggett	1	1	1	ł	ł	ŀ	1	ŀ	}	1	
000000000000000000000000000000000000000	1	ł	1	1	1	<b>¦</b>	1	ļ		1	
	1	ŀ	}	1	;	1	1	1	1		
Ulntan Ulntan		     	1	1	l	1	1	;	1	!	
KEBIONAL IDIALS											
Southeastern Region	,			160 (138)	ļ	}	1	ı			
Carbon	(191)	1	260 (18)		1	1	1	52 (64)	(181)	(181) 07 (	
Emery	1	¦		?	1	ł	1	1	1	ł	
Grand	<b>†</b>	<b>\</b>	ł	}	ļ	l	ł	53 (227)	63 (275)	15	
San Juan	1	П		(300) 011				~	(462)	(525) 19 (	1
REGIONAL TOTALS	(191) 29	281 (80)	ı,	2 3	108 (1239)	198 (1130)	107 (1678)	140 (	180	104	1
NEPHI CHECK STATION	114 (1814)		(3000) 35	2 6	1	(71517)	107 (1391)	137 (1396)	130	14	
LEHI CHECK STATION			(2107) 79	3 8	106 (2877)	131 (3884)	117 (3512)	(3910)	(3536)	) 100 (1641)4 107	107(5) 101
STATE TOTALS	91 (5330)	110000	15 AL 10								

Table 11. Percent of harvest by hatching date of immature mourning doves in northern Utah, 1979-88.

Date	Age*				PER	PERCENT OF	F HARVEST	EST BY	BY HATCH DATE	DATE					SAMP	-	س ا	S	SIZE			
Hatched	(Days)	٩	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1979	1980	1981		1983	1984		1986	1987	1988
Aug 3	53	none	45.6	35.6	46.1	32.6	22.8	43.1	44.7	31.2	34.8	!	265	316	166	152	77	304	115	192	155	
Jul 31	32	<del> </del>	22.7	26.9	33.6	24.9	21.3	29.4	26.8	35.0	21.8	1	132	239	121	116	72	207	69	215	76	ł
პიქ 25	38	2	14.3	16.4	14.2	21.7	21.0	19.0	14.0	15.6	17.5	1	83	146	51	101	۲	134	36	96	78	1
Jul 18	45	m	8.1	11.6	5.0	7.7	14.8	0.9	3.9	9.8	9.01	1	47	103	82	36	20	45	9	53	47	1
9 Luc	54	4	5.0	5.1	9.0	4.7	9.5	2.1	1.9	4.7	5.7	1	29	45	7	22	31	15	ស	29	22	ł
Jun 30	63	ស	7.5	2.4	1	4.	6.2	0.4	1.6	2.8	4.3	1	6	21	0	19	12	ო	4	11	19	ł
Jun 21	72	9	1.7	1.5	1	2.8	2.1	0.0	0.0	1.3	3.8	ļ	91	13	0	E	7	0	0	ω	17	1
Jun 8	82	7	ł	0.3	ł	.3	2.4	ŧ	0.0	0.5	:	1	0	က	0	9	æ	0	0	က	G	1
May 22	102	<b>6</b> 0	0.2	1	0.3	0.5	0.0		0.0	0.3	0.2		-	0	-		-	0	0	7	-	1
Apr 27	127	6	6.0	0.2	0.3	1	1	ł	0.0	0.0	0.2	<b>!</b>	ĸ	2	-	0	0	0	0	0	-	ł
Apr 21	133	10	ł	1	1		1		7.0	0.0	0.0	1	0	0	0	0	0	0	, <b>ഇ</b>	0	0	1
			001	100	100	100	100	100	00E	100	55	1	466	581	888	360	466	338	705	257	445	

\*Allen, J. M., 1963.

P = Last primary molted.

Percent of harvest by hatching date of immature mourning doves from the various regions (wing barrels) and check stations in Utah, 1988. Table 12.

				PERCENT OF H	HARVEST BY	BY HATCH DATE			SAMPLI	E	SIZE	
Date Hatched	Age* (Days)	٩	N Region	cs	Lehi CS	C Region Total	SE Region	N Region	Nephi CS	Lehi CS	C Region Total	SE Region
Aug 3	53	none	l	43.1	47.9	45.5	63.3	ł	87	102	189	55
յսի 31	32	_	1	33.7	41.3	37.6	26.4	1	89	88	156	23
Jul 25	38	7	l	13.4	7.5	10.4	5.7	1	27	91	43	Ŋ
Jul 18	45	က	l	5.0	2.8	3.9	4.6	ŀ	10	9	91	4
Jul 9	54	4	ŀ	2.5	0.0	1.2	0.0	1	ស	0	ស	0
Jun 30	63	2	ŀ	2.0	0.0	1.0	0.0	I	4	0	4	0
Jun 21	72	9	I	0.3	0.0	0.2	0.0	1	-	0	-	0
Jun 8	82	7	ł	0.0	0.0	0.0	0.0	I	0	0	<b>.</b>	0
May 22	102	80	l	0.0	0.5	0.2	0.0	1	0	-	-	0
Apr 27	127	6	1	0.0	0.0	0.0	0.0	1	0	0	0	0
Apr 21	133	10	<b>!</b>	0.0	0.0	0.0	0.0	1	0	0	0	0
			1	100.00	100.00 100.00	100.00	100.00	1	202	213	415	87

\*Allen, J. M., 1963.

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 1988 band-tailed pigeon harvest are unknown, because hunter reports were lost. Permits were required, and a questionnaire was not sent to participants. Only 29 hunters purchased the \$2.00 band-tailed pigeon permit. Harvest trends since 1970 are shown in Table 14.

	1988	Percent 1987	change from Average
Band-tailed pigeon hunters	29		
Band-tailed pigeon harvest			
Hunter-days afield			
Pigeons per hunter-day			
Pigeons per hunter			

Total hunters, hunter-days afield and total harvest are unknown for 1987, however, it is assumed that a majority of the 1988 harvest again occurred in Iron and Washington counties.

Table 13. Band-tailed pigeon harvest statistics, 1988.

	Participating	ting							
	Hunters	LS	Hunter-days	-days	Harvest	st	Pigeons/	Percent of	Percent of
Area Hunted	Reported	Calc.	Reported Calc	Calc.	Reported Calc.	Calc.	Hunter-day	Pressure*	
·									
Beaver County	ł	!	l	1	1	ł	ł	ł	1
Blue Mountain-Elk Ridge	ł	ł	ı	ł	1	ì	ı	ł	ŀ
Carbon County	1		1	1	1	1	ł	ŀ	1
Garfield County	ł	1	ł	1	1	1	ł	ŀ	ŀ
Iron County	1	ı	ì	ł	1	1	ł	1	1
Kane County	1	ł	1	ł	!	1	1	ı	1
LaSal Mountain	1	1	ŀ	ŀ	1	ł	ł	;	1
Millard County	i	1	ł	1	1	1	1	}	<b>!</b>
Piute County	ł	!	1	ł	1	ļ	ł	ł	ł
Utah County	ŀ	ł	ł	1	1	1	}	i	ł
Washington County	ŀ	1	}	I	1	!	ł	1	1
Wayne County	1	ł	1	ł	1	1	1	ł	ŀ
Mixed counties									
(Washington & Iron)	1	I	}	ł	;	1	1	ł	1
TOTALS									•
	ł	1	<b>!</b>	ŀ	1		ŀ	1	ŀ

"Based on hunter-days.

Table 14. Band-tailed pigeon harvest trend, 1970-88.

	Total	Total	Hunter-Days	Pigeons Per	Pigeons Per
<u>Year</u>	Hunters Afield	Harvest	Afield	Hunter-day	Hunter
1970	34	109	53	2.1	3.2
1971	54	156	110	1.4	2.9
1972	61	211	122	1.7	3.5
1973	25	18	42	0.4	0.7
1974	74	95	141	0.7	1.3
1975	54	116	119	1.0	2.2
1976	54	119	162	0.7	2.2
1977	70	435	225	1.9	6.2
1978	78	264	238	1.1	3.4
1979	62	117	133	0.9	1.9
1980	62	182	175	1.0	2.9
1981	67	101	142	0.7	1.5
1982	51	113	125	0.9	2.2
1983					
1984					
1985		<del></del>			
1986					
1987	<del></del>				
1988	29				
TOTALS					
(1970–82)	746	2,036	1,787	1.1	2.7
AVERAGES					
(1970–82)	57	157	137	1.1	2.8

# CHUKAR PARTRIDGE

# SUMMARY

The statewide breeding population of chukars increased again in 1988 following another normal winter in northwestern Utah. Late winter and early spring precipitation, critical to successful chukar production, was again average.

Results of the brood survey indicated that brood production was above average, although breeding populations were still down. Favorable nesting conditions and adequate forage were available as a result of average precipitation during late winter and early spring. However, dry and hot weather in May through August apparently did not adversely affected brood survival. Chukar density increased significantly during 1988, and was 117 percent above average.

Harvest statistics from mail questionnaires reflected no increase in harvest. Hunter success (chukars per hunter-day) decreased 5 percent from 1987. Chukar hunters and time afield were virtually the same as the year before. However, hunting success on opening weekend as measured by field bag checks indicated increased hunter success in central and southeastern Utah.



#### Brood Counts

Results of the annual random brood survey for 1988 are shown in Table 1 of this section. Long-term trends of young-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 1988 compared to 1987 and the 10-year (1978-87) average:

		Percent	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total chukars observed	1,007	+19	+20
Young per 100 adults	496	+21	+17
Mean brood size	8.00	+1	-2
Chukars observed per 100 hours	959	+93	+117
Total hours effort	105	-51	-34

Harvest data for 1987 indicated breeding populations for 1988 were still significantly below statewide averages. The 1987-88 winter weather was reasonably mild with below average precipitation but below normal temperatures statewide. Late winter and early spring precipitation (January-April) was average over the entire state (Figure 4). However, above average temperatures and below normal precipitation were common from July through October. Above normal precipitation occurred in April which should have increased cheatgrass for food and cover.

Effort on chukar brood counts decreased from 1987 and remained below average.

Brood count sample sizes were again small for all regions. The Central Region counted 15, the Northern Region counted 3, and the Southern Region counted 4 of the state total of 41 broods. Chukar density was 117 percent above the 10-year average and production was up from 1987.

#### Harvest

# Hunter Questionnaire

Results of the hunter questionnaire survey for 1988 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 Figure 2 and 3. Following is a comparison of 1988 harvest statistics to 1987 and the 30-year average:

		<u>Percent</u>	change from
	<u>1988</u>	<u> 1987</u>	<u>Average</u>
Chukar hunters	11,237	0	-22
Chukars harvested	32,057	-2	-21
Hunter-days afield	40,088	+3	-2
Chukars per hunter-day	0.80	<b>-5</b>	-14
Chukars per hunter	2.85	-2	+3

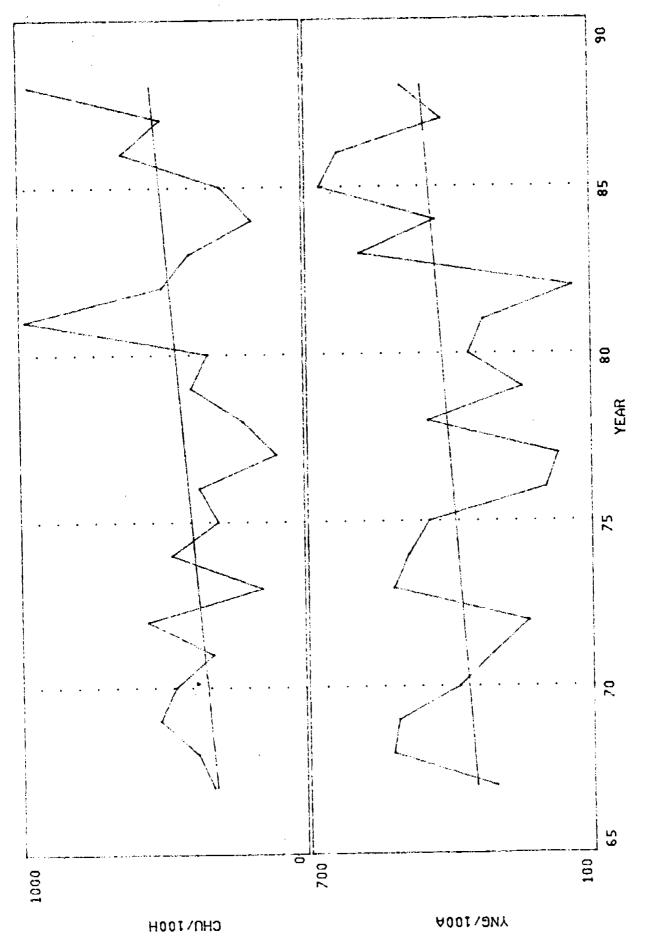
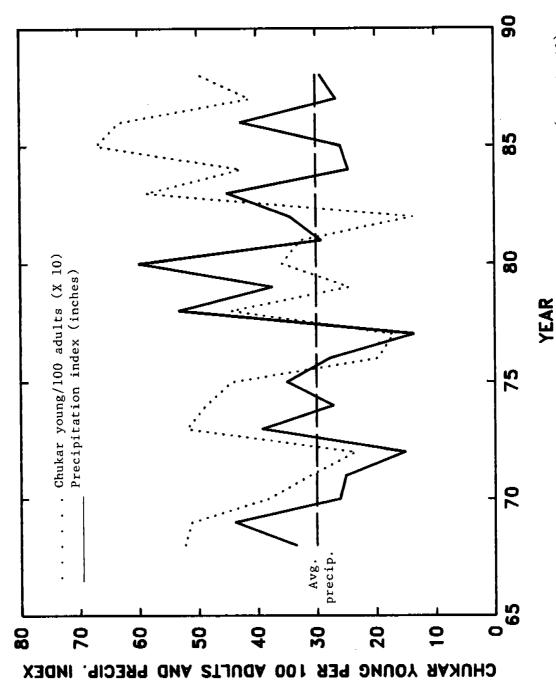


Figure 1. Statewide chukar production indices, 1967-88.

Statewide trends of chukar partridge harvest statistics. Figure 2.

YEAR

Statewide trends of chukar hunter success rates, 1968-88. Figure 3.



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

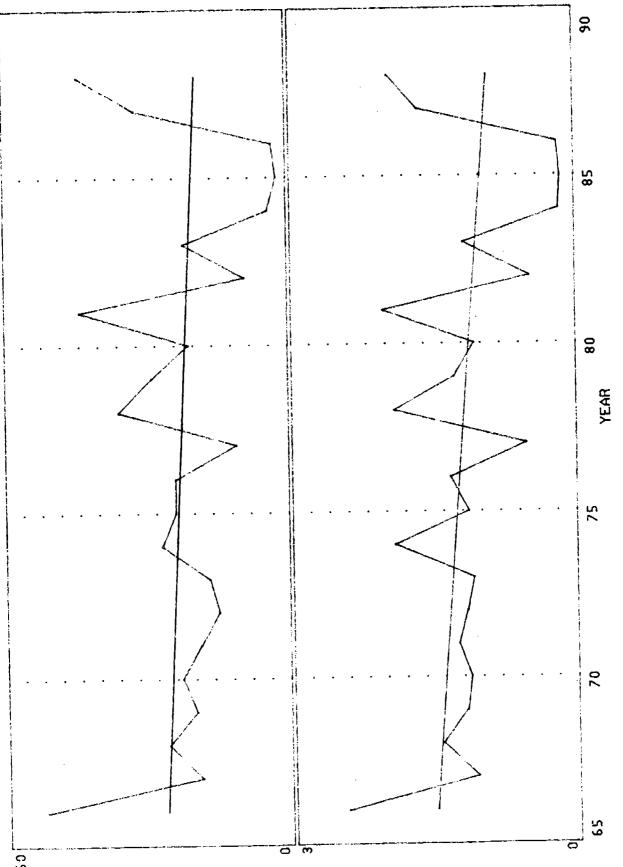


Figure 5. Statewide chukar field bag check indices, 1967-88.

CHU/100H

CHUVHNTR

Chukar hunters, hunter effort and success were virtually the same as last year. Chukars per hunter-day was 14 percent below the statewide average. The Central Region again had the highest percentage of the harvest (51%) in 1988, and also had the highest percentage of hunter pressure (49%).

#### Field Bag Check

A summary of field bag check data for 1988 is shown in Table 10. The hunter success trend determined by field bag checks since 1983 is shown in Table 11 and Figure 5. Data for the 1988 season compared to 1987 and the (1966-87) average follow:

		Percent c	hange from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total hunters checked	139	+54	-71
Total hours hunted	458	+34	<del>-</del> 79
Chukars per hunter (complete hunts)	1.63	+19	+66
Chukars bagged per 100 hours	44	+38	+100
Average hours per hunter-day			
(complete hunts)	3.7	-14	-20
Hours hunted per chukar bagged (complete hunts)	2.3	-28	-76

Field bag checks indicated hunter success on opening weekend was up substantially from 1987 and was well above average (66%). However, these data were significantly influenced by a larger sample from Tooele and Juab counties. Box Elder County check station hunter success rates were down 58 and 70 percent from 1987. A further reduction in hours hunted per chukar bagged and shorter hunter days also indicated improved chukar hunter success in 1988.

Table 1. Chukar summer inventory summary, 1988.

		Distinct	ct Ct		Mixe	Mixed Yng				1						
Region and	4	Broods	s	Mean	& A	& Adults	Adults	Total	Total	Young/	Veh.	H	Hours of Effort	f Effo	rt	Birds/
County	*	Ad	Yng	Brood	Ad	Yng	w/o Yng	Adults	Yng	100 Ad	Miles	Veh.	Horse Walk Total	Walk	Total	100 Hr
Northern Region																
Box Elder	7	4	15	7.50	0	0	7	Ξ	15	136	0	0	0	=	Ξ	236
Cache	_	7	9	6.00	0	0	0	7	9	300	379	21	0	7	23	35
Davis	0	0	0	0.00	0	0	Ŋ	S	0	1	0		0	0	_	200
Morgan	1	ł	1		ŀ	ł	ł	ł	ł	1	}	ł		1	ł	ł
Rich	1	1	ļ	}	1	1	ŀ	ţ	ł	ł	1	1	}	ł	1	ł
Summit		1	ł	1	1	ł	ł	}	!	1	1	1	1	ł	1	ł
Weber			ł	ł	I	1	1	1	1	ł	}	1	1	;	1	ł
REGIONAL TOTALS	6	9	21	7.00	0	0	12	18	21	117	379	22	0	2	35	=
Central Region																
Juab	∞	œ	24	6.75	38	186	o	52	240	462	312	32	0	0	32	913
Salt Lake	1	1	ł	ŀ	ŀ	1	ŀ	ł	ł	ł	}	ł		l		ŀ
Sanpete	1	ł	ł	l	}	ľ	ł	1	1	1	ł	}	}	ł	1	1
Tooele	~	~	25	7.43	~	4	ις	19	92	484	145	17	0	0	17	653
Utah	}	}	ł	}	ł	ł	1	ł	1	ł	1	ł	1	1	1	1
Wasatch	1	ł	1	1	i	1	1	1	ŀ	!	1	1	!	1	1	1
REGIONAL TOTALS	55	15	106	7.07	45	226	=	11	332	468	457	49	0	0	49	822
Southern Region																
Beaver	!	1	ŀ	1	ł	ł	1	!	ł	ł	ł	1	{	1	ł	ł
Garfield	}		ŀ		1	1	1	1	1	ł	1	1	}	ł	1	ŀ
Iron	1		ł	1		ł	1		1	1		1	ł	ł	1	
Kane	ł	1	ł	}	1	ľ	ł	1	ł	1		ł	ł	}	}	ł
Millard	4	4	31	7.75	2	21	2	16	88	220	9	7	1	1	7	1,486
Piute	!	ł	ł	1	ł	ł	;	ł	1	1	ł	1	}	ł	ł	ł
Sevier		ŀ	1	1	1	ł	!		1	ŀ	1		}	1	1	I
Washington		1	1	1	ŀ	1	ł	}	1	}	1	ł	}	1	1	ł
Wayne	ł	1	1	ł	1		i	ł	1	1	1	ł	1	-	1	1
REGIONAL TOTALS	4	4	33	7.75	2	22	2	16	88	550	9	7	ł	1	7	1,486
Northeastern Region	티															
Daggett	1	ł	1	1	1	1	ł	l	}	1	ł	}	1	1	1	ł
Duchesne	{	ł	1	1	1	ŀ	1	1	1	1	}	<b>¦</b>	!	1	}	ł
Uintah	1	1	1	1	1	1	1	1	1	1	1	ł	1	1	-	1
REGIONAL TOTALS	1	1	ij	ł	1	1	1	ł	ł	1	}	!	!	1	ł	
Southeastern Region	티															
Carbon	-	-	ý	9.00	0	0	0	-	9	909	30	7	0	0	7	350
Emery	1	1	1	1	1	1	1	1	l	ł	1	1		1	{	ł
Grand	92	18	164	9.13	4	227	4	63	391	621	150	12	0	0	12	3,783
San Juan	- 1	- 1	1	1		1	1	1	I	1	1	1	}		!	1
REGIONAL TOTALS			22	8.95	4	227	4	64	397	620	180	14	0	0	14	3,293
STATE TOTALS	4	44	328	8.00	96	510	29	169	838	496	1,076	92	0	13	105	959

Table 2. Trend of chukar young per 100 adults, 1978-88.

326 120 326 120 326 120 327 750 3315 600 3315 600 348 512 348 513 348 513	Year					Average
562   198   111   326   120	1982	1984	1985 19	1986 1987	7 1988	1978-87
562       198       111       326       120         -       300       -       -       -         -       300       -       -       -         -       300       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -       -       -       -         -       -						
1, 100	120	1	4,200	700 283	3 136	
1, 100 — 557 315 600  1, 100 — 557 315 600  440 500 767 — 400  686 771 697 359 585  0 205 243 — 400  686 771 697 359 585  0 205 243 — 400  150 450 518 572 348 512 8  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 450 550 200 — 600  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800  150 800 — 600 800 800 — 600 800 800  150 800 — 600 800 800 — 600 800 800  150 800 — 600 800 800 — 600 800 800 800  150 800 — 600	600	1		850	300	
1, 100	7	1	1	24		
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1, 100		1	1	! 	¦	
1,100	. 750	}	1	} 	!	
1,100	<b>!</b>	ł		1	-	
1,100 — 557 315 600 440 500 767 — 400 686 771 697 359 585 0 205 243 — 400 686 771 697 359 585 0 205 243 — — — — — — — — — — — — — — — — — — —	27.		4,200	560 125	711 2	674
1, 100 557 315 600  283 400 50  440 500 767 400  686 771 697 359 585  0 205 243 40						
440 500 767 400 50 686 771 697 359 585 0 205 243	009	800	-	739 600	0 462	
440 500 767 400 686 771 697 359 585 0 205 243 386 518 572 348 512 350 122 350 122 350 122 600 800 600 900 600 800 600 233 420 425 410 389 9100 575 78		1	ł			
686 771 697 359 585  0 205 243 ———————————————————————————————————	7	1	1	i 	1	
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386 518 572 348 512	800	1		-		
150	512	481	457 6	642 591	1 468	531
150						
150		}	}	1		
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980     416      578        500       700        520       220       601     416      577     518       603     416      573		;	i	267		
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220 533 533 501 518		!				
220 533	518	775	730 7	730 573	3 621	
501 116 JOH 250 135		337	1		1	
391 410 /00 5/5 420	426 617	392	408 2	287* 631	620	504
STATE TOTALS 444 245 358 326 138 586	138	426	670 6	631 411	1 496	424

Table 3. Trend of chukar mean brood size from 1978-88.

1978   1979   1980   1981   1982   1983   1984   1985   1985   1987	Region and						Year						Average
14.60 9.57 8.33 12.00 9.00 8.50  2.00 7.50 7.50 9.00 8.50  11.00 6.00 13.3 3.00 7.00 9.00 8.50  5.00 6.30 13.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.50 10.00 6.00 10.00 10.50 3.00 10.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 12.50 9.00 10.60 8.50 8.63 7.68 8.53  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 12.50 5.33 8.23 7.94 8.48 8.49 8.43 7.85 8.50  9.00 8.00 12.50 5.30 8.50 8.63 7.75 9.00 8.50  9.00 8.00 12.50 10.00 8.00 10.00 8.60 8.63 7.85 8.53 7.85 8.53 8.53 8.50 8.60 8.60 8.65 7.75 9.00 8.60 8.60 8.60 8.60 8.60 8.60 8.60 8	County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
14.66   9.57     8.33   12.00     9.00     8.50     13.00     13.00     13.00     13.00     14.66   8.00     13.33   3.00   7.00     19.00   -	Northern Region												
11.00	Box Elder	14.60	9.57	1	8.33	12.00	ł	i	9.00	1	8.50	7.50	
11.00	Cache	ł	3.00	1	1	1	9.00	!	1	}	}	9.00	
14.60   8.00   - 8.33   3.00   7.50     -   -   -   -   -   -   -   -	Davis	ł	2.00	ł	1	ł	ł	}	1	ŀ	1	}	
11.60 8.00	Morgan	ł	ł		1	1	7.50	1	1	1	}	1	
11.66   8.00   -8.33   3.00   7.00   -9.00   -8.50	Rich	1	ł	ł	ł	ł	l	}	1	1	I	1	
14.66   8.00     8.33   3.00   7.00     9.00     8.50       11.00     7.70   5.45   6.00     8.00     9.00     8.50       5.07     4.00           6.50   14.07   9.91   8.92   10.60     6.00   8.43   7.86   8.00       6.50   14.07   9.91   8.92   10.60     10.00     10.00       6.50   13.38   8.16   7.13   10.14     6.80   8.63   7.68   8.23       6.50   13.38   8.16   7.13   10.14     6.80   8.63   7.68   8.23       6.50   10.00   6.00   10.00     9.00       5.00       9.00   0.00   0.00   9.67   7.00       10.00       9.00   0.00   0.00   9.67   7.00     10.00     10.00       9.00   0.00   12.50     10.00   8.57   8.00   6.91   8.46   8.13   7.33   8.57   8.57   8.57   8.57   8.57   8.53   9.48   8.00   6.91   8.46   8.13   7.33   8.55   1.35   8.53   9.48   8.00   6.91   8.46   8.13   7.33   8.55   1.35   8.23   9.48   8.00   6.91   8.46   8.13   7.33   8.55   7.35   7	Summit	}	-	1	1	7.50	1	!	ł	1	1	! !	
11.00	Weber	1	}	i	1	1	1	!		1	1	ł	
11.00	REGIONAL TOTALS	14.60	8.00	}	8.33	3.00	7.00	-	9.00	1	8.50	7.00	8,35
11.00	Central Region												
5.00 6.33 4.00 6.00 8.43 7.86 8.00  6.50 14.07 9.91 8.92 10.60 6.00 8.43 7.86 8.00  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.00 6.00 10.00 10.50 3.00 5.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 5.00 5.00  9.00 8.00 10.00 9.67 7.00 5.00 5.00  9.00 8.00 10.00 9.67 7.00 5.00 5.00  9.00 8.00 10.00 9.67 7.00 6.50 9.67 6  9.00 8.00 10.00 9.67 7.00 10.00 5.00  9.00 8.00 10.00 9.67 7.00 6.50 9.67 6  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 10.00 10.00  9.00 8.00 10.00 9.67 7.00 8.50 8.55 8.57 8.5 8.57 8.50 8.55 8.53 9.48 8.00 6.91 8.46 813 7.93 8.55	Juab	11.00	ł	7.70	5.45	6.00	1	8.00	ł	7.45	8.00	6.75	
5.00 6.33	Salt Lake	ł	5.67	1	4.00	ł	1	!	ł	1	1	1	
6.50 14.07 9.91 8.92 10.60 6.00 8.43 7.86 8.00  0.00 6.00 4.00 6.00  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.23  6.50 11.38 8.16 7.13 10.14 6.80 8.63 7.68 8.20  0.00 6.00 10.00 10.50 3.00 6.00 8.43 7.88 8.00 6.91 8.45 8.13 7.91  0.00 6.00 10.00 9.67 7.00 6.80 8.25 7.75 9.00 6.00  0.00 10.00 12.50 11.90 8.25 7.00 7.67 10.40* 8.25 8.73 9.48 8.00 6.91 8.45 8.13 7.93 8.	Sanpete	5.00	6.33	ł	1	!	1	ļ	1	ł	ł	ŀ	
0.00 6.00 4.00 6.00 10.5	Tooele	6.50	14.07	16.6	8.92	10.60	1	9.00	8.43	7.86	8.00	7.43	
6.50 11.38 8.16 7.13 10.14 — 6.80 8.63 7.68 8.23  0.00 11.38 8.16 7.13 10.14 — 6.80 8.63 7.68 8.23  0.00 6.00 10.00 — 10.50 3.00 — — — — — — 5.00  9.00 10.00 10.00 9.67 7.00 — — — — — 5.00  19.00 — — — 9.00 — 10.00 — — 10.00  19.00 — — — 9.00 — — — 10.00 — — 10.00  19.00 — — — 9.00 — — — 10.00 — — 10.00  19.00 — — — 9.00 — 10.00 — — 10.00  19.00 — — — 9.00 — 10.00 — — 10.00  19.00 — — — 9.00 — 10.00 — — 10.00  19.00 — — — 9.00 — 10.00 — — 10.00  19.00 — — — 9.00 — 10.00 — 8.57 9.00  19.00 — — 9.00 — 10.00 9.67 7.75 9.00 — 8.57 9.00  19.00 — — 9.00 12.50 — 11.30 8.25 7.00 7.67 10.40* 8.25 8.23 9.48 8.00 6.91 8.46 8.13 7.93 8.23	Utah	0.00	6.00	4.00	!	}	1	ł	10.00	ł	10.50	1	
6.50 11.38 8.16 7.13 10.14 — 6.80 8.63 7.68 8.23	Wasatch	1	ł	6.00	1	ï	ł	-			ł	ł	
9.00 6.00 10.00	REGIONAL TOTALS	6.50	11.38	8.16		10.14	!	6.80	8.63	7.68	8.23	7.07	8.29
0.00 6.00 10.00	Southern Region												
0.00 6.00 10.00	Beaver	!	1	;	1	I	1	ł	1	}	ł	ļ	
0.00	Garfield*	1	1	ł	1	ł	}	1	ł	2.00*	1	1	
0.00 6.00 10.00	Iron	!	!	ł	1	ŀ	ł	ł	1	1	ł	1	
0.00 6.00 10.00 — 10.50 3.00 — — — — — — — 5.00  8.00 — — — — — — — — — — — — — — — — — —	Kane	1	ł	1	ŀ	1	!	ļ	!	}	ł	ł	
0.00 10.00 10.50 3.00 5.00  8.00 5.00  9.00 9.00 5.00  gion  9.00 10.00 9.67 7.00 5.00  gion  9.00 10.00 10.00 10.00  9.00 10.00 10.00 10.00  9.00 11.90 8.25 7.05 9.00 5.00  1.00 5.33 5.33 5.00  3.00 12.50 11.30 8.25 7.00 7.67 10.40* 8.25 8.23 9.48 8.00 6.91 8.46 8.13 7.93 8	Millard	0.00	6.00	10.00	ľ	ł	}	1	ł	ľ	I	7.75	
9.00	Piute	0.00	10.00	1	10.50	3.00	!	1	1	ł	5.00	!	
9.00	Sevier	ł	;	1	8.00	1	1	ł	1	1	ł	1	
9.00	Washington	!	1	1	ł	¦	1	;	1	}	ŀ	i	
9.00 8.00 10.00 9.67 7.00 5.00  9.00	Wayne	9.00	!	1	-	9.00	-	1		1	1	;	
9:00       9:00   10.00       gion              10.00               10.00               10.00               10.00               10.00                10.00	REGIONAL TOTALS	9.00		10.00	9.67		1	1	1	1	5.00	7.75	8.11
9100 9.00 10.00 10.00  9100 9.00 10.00 10.00 10.00  9100 9.00 10.00 10.00 10.00  9100 9.00 10.00 10.00 10.00  9100 5.00 5.00 5.00 5.00  9100 5.00 5.33 5.00 8.57  9100 12.50 11.30 8.25 7.00 7.67 10.40* 8.25  9100 6.91 8.46 8.13 7.03	Northeastern Region												
0.00           10.00      10.00       gion       9.00      10.00      10.00          9.00      10.00      10.00        5.00        5.00      5.00        0.00     12.50      11.30     8.25     7.75     9.00      5.00        1.00      5.33        5.00        3.00     12.50      11.30     8.25     7.00     7.67     10.40*     8.25       5.77     8.75     10.35     8.23     9.48     8.00     6.91     8.46     8 13     7.03	Daggett	1	1	ł	9.00	!	ł	ł	ł	ł	1	1	
9ion        10.00      10.00         9.00      10.00      10.00        5.00       5.50      12.50     9.67        5.00        5.00      5.00        1.00     12.50      11.30     8.25     7.75     9.00      8.57        3.00     12.50      5.33            3.00     12.50      11.30     8.25     7.00     7.67     10.40*     8.25       5.77     8.75     10.35     8.23     9.48     8.00     6.91     8.46     8 13     7.03	Duchesne	0.00	1	}	1	ł	i	ł	ł	ł	;	1	
9:00       9:00      10:00      10:00        5:00       5:50      12:50     9:67        5:00       5:00      5:00        0:00     12:50      11:90     8:25     7:75     9:00      8:57        3:00     12:50      5:33            3:00     12:50      11:30     8:25     7:00     7:67     10:40*     8:25       5:77     8:75     10:35     8:23     9:48     8:00     6:91     8:46     8:13     7:03	Uintah	!	1	1	1		10.00	}		1	10.00		
9ion        5.50      12.50     9.67        5.00       5.00      5.00      5.00        0.00     12.50      11.90     8.25     7.75     9.00      8.57        1.00      5.33            3.00     12.50      11.30     8.25     7.00     7.67     10.40*     8.25       5.77     8.75     10.35     8.23     9.48     8.00     6.91     8.46     8.13     7.03	REGIONAL TOTALS	1	ł	1	9.00		10.00	}	1		10.00	   	6.67
	Southeastern Region												
5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.00 5.33 5.33 5.33 5.33 5.33 5.33 5.33 5.33 5.00 12.50 11.30 8.25 7.00 7.67 10.40* 8.25 5.77 8.75 10.35 8.23 9.48 8.00 6.91 8.46 8.13 7.03	Carbon	1	1	l	1	1	ł	5.50	1	12.50	6.67	9.00	
0.00 12.50 11.90 8.25 7.75 9.00 8.57 1.00 5.33	Emery	1	2.00	}	l	1	ł	ļ	2.00	1	2.00	}	
1.00 5.33 5.33 5.33 5.33 5.00 12.50 11.30 8.25 7.00 7.67 10.40* 8.25 5.77 8.75 10.35 8.23 9.48 8.00 6.91 8.46 8.13 7.03	Grand	1	0.00	12.50	ŀ	1.90	8.25	7.75	9.00	ł	8.57	9.11	
3.00 12.50 11.30 8.25 7.00 7.67 10.40* 8.25 5.77 8.75 10.35 8.23 9.48 8.00 6.91 8.46 8.13 7.03	San Juan	1	90.	!	1	5.33	1	i	i	1	ł	1	
5.77 8.75 10.35 8.23 9.48 8.00 6.91 8.46 8.13 7.03	REGIONAL TOTALS	1	3.00	12.50		11.30	8.25	7.00	7.67	10.40*	8.25	8.95	8.55
CC. 1 CI.O OL.O CO.O CO.O CO.O CO.O CO.O CO.O CO	STATE TOTALS	5.77	8.75	10.35	-1	9.48	8.00	6.91	8.46	8.13	7.93	8.00	8.20

Table 4. Trend of chukars observed per 100 hours, 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	307	438	43	645	8	1	1	239	168	4	236	
Cache	}	57	l	1	ł	700	ł	1	ł	83	35	
Davis		809	760	810	1,127	100	ŀ	1	22	313	200	
Morgan	}	1	}	;	ł	820	}	1	1	ł	1	
Rich	ł	ł	1	ł	1	1	i	1	1	1	1	
Summit	1	ł	1	1	1	ł	1	}	1	ļ	1	
Weber	}	1	}	!	1	ł	1	1	1	!	}	
REGIONAL TOTALS	307	430	140	505	479	227	1	155	102	16	111	270
Central Region			l				•					
Juah	109	1,500	206	692	363	1	200	1	2,611	820	913	
Salt Lake	1	509	1	200	43	1	1	1	1	ł	ļ	
Sanpete	142	200	248	1	857	ł	1	ł	1	1	1	
Tooele	716	1,038	1,468	985	1,013	ł	44	681	1,046	1,123	653	
Utah	133	1,220	533	1	38	ł	}	578	ł	1,950	ŀ	
Wasatch		!	350	1	ł	491	ł	1	1	1	ł	
REGIONAL TOTALS	243	623	440	722	578	164	291	542	1,424	844	822	587
Southern Region						}						
Beaver	!	1	ł	1	1	}	1	1	1	1	1	
Garfield	ł	1,200	1	!	200	<b>¦</b>	1	<b>¦</b>	ł	}	ł	
Iron	1	1	1	1	ł	<b>¦</b>	}	ļ	1	}	1	
Kane	1	ł	1	ł	!	ł	1	1	!	1	1	
Millard	182	220	236	1,467	}	}	1	1	I	1	1,486	
Piute	0	120	}	1,660	433	1	1	1	1	1,567	1	
Sevier	1	}	1,400	906	17	ł	ł	ţ	ł	ł		
Washington	1	}	1	}	1	ł	l	ł	ł	}	1	
Wayne	83	1	ľ	1	700	3,350	1	!	1	1	1	
REGIONAL TOTALS	115	242	525	1,436	266	3,350	ł	ł	ł	1,567	1,486	1,072
Northeastern Region												
Daggett	}	}	1	ł	1	ł	ł	l	}	}	<b>!</b>	
Duchesne	0	0	1	300	790	;	1	1	1	1	ł	
Uintah	1	0	- [	614	454	98	1	-	0	856	ŀ	
REGIONAL TOTALS	0	0	1	533	348	27	1	}	0	241	}	164
Southeastern Region												
Carbon	1	0	1,600	ł	ł	ł	420	1	ŀ	7,800	320	
Emery	200	ł	1	ł	1	ł	ł	833	}	177	1	
Grand	379	1,020	ł	2,891	1,167	2,871	291	424	2,075	1,167	3,783	
San Juan	67	0	;	1,120	1	ł	1,750	1	ł	}	-	
REGIONAL TOTALS	185	230	160	2,338	1,578	2,871	858	530	2,075	1,335	3,293	1,216
STATE TOTALS	213	396	336	978	496	398	176	286	633	496	959	441

Table 5. Summary of chukar hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Birds	Birds per	% of	% of
County	Size*	Afield	Bagged	Hunter-day	Pressure	Harvest
Northern Region	100	- 100				
Box Elder	133	5,192	3,255	.63	12.95	10.15
Cache	34	1,268	734	.58	3.16	2.29
Davis	8	333	550	1.65	.83	1.71
Morgan	7	200	217	1.08	.49	.67
Rich	4	116	166	1.43	.29	.52
Summit	8	417	283	.68	1.04	.88
Weber	6	183	83	.45	.45	,26
REGIONAL TOTALS	200	7,713	5,292	.69	19,24	16.51
Central Region						
Juab	42	2,571	2,304	.90	6.41	7.18
Salt Lake	18	868	601	.69	2.16	1.87
Sanpete	39	2,020	2,554	1.26	5.03	7.96
Tooele	174	9,650	7,897	.82	24.07	24.63
Utah	86	4,541	2,905	.64	11.32	9.06
Wasatch	3	66	66	1.00	.16	20
REGIONAL TOTALS	362	19,718	<u>16,329</u>	.83_	49.18	50.93
Southern Region						
Beaver	11	1,001	350	.35	2.49	1.09
Garfield	3	133	150	1.13	.33	.46
Iron						
Kane						
Millard	48	2,788	2,638	.95	6.95	8.22
Piute	9	550	166	.30	1.37	.52
Sevier	65	4,224	2,821	.67	10.53	8.80
Washington						
Wayne	5	100	183	1.83	.24	57
REGIONAL TOTALS	141	8,799	6,311	.72	21.94	19.68
Northeastern Region						
Daggett**	_	***				
Duchesne	9	283	601	2.12	.70	1.87
Uintah	7	267	183	.69	.66_	.57_
REGIONAL TOTALS	16	550	784	1.42	1.37	2.44
Southeastern Region	_					
Carbon	7	233	300	1.29	.58	.93
Emery	37	2,421	2,304	.95	6.03	7.18
Grand	11	567	717	1.26	1.41	2.23
San Juan	1	33	16	.50	.08	.05
REGIONAL TOTALS	56	3,255	3,339	1.03	8,11	10.41
Unknown Counties	1	50			.12	
STATE TOTALS	776	40,088	32,057	.80	100.00	100.00

<sup>\*</sup>Total hunter trips from questionnaire returns.

Table 6. Summary of chukars bagged per hunter-day by region and county, 1981-88.

Region and				Yea				
County	1981	1982	1983	<u> 1984</u>	1985	1986_	1987	1988
Northern Region								
Box Elder	1.55	0.75	1.00	0.30	0.55	0.49	0.62	0.63
Cache	0.42	0.38	0.42	0.43	0.13	0.14	0.85	0.58
Davis	0.33	0.47	0.17	0.53	0.43	0.50	0.20	1.65
Morgan	0.75	1.21	1.02	0.10	0.30	0.00	1.33	1.08
Rich	0.50	0.67	0.83	0.80	0.00	0.00	1.00	1.43
Summit	0.73	0.00	1.38	0.67	0.00	0.00	1.25	0.68
Weber	1.25	0.91	0.61	2.46	0.18	0.00	0.44	0.45
REGIONAL TOTALS	1.28	0.74	0.91	0.41_	0.46	0.39	0,64	0.69
Central Region								
Juab	0.66	0.57	1.00	0.92	1.63	0.87	1.10	0.90
Salt Lake	1.32	0.96	0.95	1.59	0.96	1.08	1.16	0.69
Sanpete	1.72	0.57	0.77	1.14	1.28	0.88	0.58	1.26
Tooele	0.97	0.73	0.94	0.95	1.12	0.90	0.84	0.82
Utah	0.81	0.74	0.85	0.62	0.71	0.65	0.71	0.64
Wasatch	0.33	0.94	0.61	0.07	0.07	0.00	0.83	1.00
REGIONAL TOTALS	0.98	0.73	0.90	0.88	1.06	0.84	0.86	0.83
Southern Region								
Beaver	2.33	0.61	1.80	1.60	0.00	0.13	0.63	0.35
Garfield	1.11	1.00	0.38	1.83	0.00	0.33	0.40	1.13
Iron	1.00	0.17	<del></del>	2.00	0.00	0.00	0.00	0.00
Kane	0.00	0.00	0.38	0.67	0.00	0.00	0.00	0.00
Millard	1.92	1.57	1.28	0.80	1.55	1.88	1.09	0.95
Piute	1.78	0.59	0.68	0.50	0.71	0.13	0.81	0.30
Sevier	1.48	0.41	0.40	0.37	0.21	0.48	0.57	0.67
Washington	0.00	0.00		0.50	0.00	0.00	0.00	0.00
Wayne	2.29	0.83	0.50	0.00	1.00	0.00	2.00	1.83
REGIONAL TOTALS	1,71	0.68	0.71	0.63	0,72	0,92	0.82	0.72
Northeastern Region								
Daggett	0.00	0.00			0.00	0.00	3.00	0.00
Duchesne	1.30	0.43	0.50	0.22	2.00	0.00	0.20	2.12
Uintah	1.20	2.06	1.00	1.45	1.00	0.00	1.68	0.69
REGIONAL TOTALS	1.25	1.15	0.63	0.90	1.09	0.00	1.44	1.42
Southeastern Region								
Carbon	1.24	0.76	0.88	0.42	0.42	0.89	0.87	1.29
Emery	1.06	0.83	1.54	0.44	0.62	0.74	0.90	0.95
Grand	1.89	1.02	1.61	0.37	1.31	1.57	1.19	1.26
San Juan	0.67	2,20	1.82	0.25	0.00	0.86	1.67	0.50
REGIONAL TOTALS	1,42	0.90	1.43	0.40	0.65	1.05	1.07	1.03
Unknown Counties	1.83	1.00	1.27	0.00	0.00	0.00	0.00	0.00
STATE TOTALS	1.23	0.75	0.93	0.66	0.86	0.80	0.84	0.80

Table 7. Percentage distribution of chukar harvest by region and county, 1981-88.

Region and					Year			
County	1981	1982	1983	1984			1987	1988
Northern Region								
Box Elder	26.85	25.31		6.64	8.39	7.64	10.59	10.15
Cache	1.27	1.25		1.81	0.20	0.24	1.64	2.29
Davis	0.09	0.56	0.09	1.61	0.61	0.16	0.07	1.71
Morgan	1.98	3.20	2.16	0.30	0.31	0.00	0.29	0.67
Rich	0.05	0.13	0.22	0.41	0.00	0.00	0.07	0.52
Summit	0.52	0.00	1.31	0.20	0.00	0.00		0.88
Weber	0.94	1.94	1.40	3.22	0.41	0.00	0.59	
REGIONAL TOTALS	31.71	32.39	30.25	14.18	9.92	8.04	13.65	
Central Region								
Juab	2.31	2.07	3.16	7.24	11.67	7.89	12.68	7.18
Salt Lake	6.94	4.51	4.15	7.04	5.12	3.33	4.32	1.87
Sanpete	2.93	3.01	3.56	2.51	8.90			7.96
Tooele	14.11	18.23	20.34	26.66				24.63
Utah	7.69	13.97	12.76	11.97	10.75	9.02	9.77	9.06
Wasatch	0.05	1.07	0.63	0.10	0.10	0.00	0.37	
REGIONAL TOTALS	<u>34.03</u>	42.86	44.60	55.53	<u>69.40</u>			
Southern Region								
Beaver	0.99	1.07	0.40	0.80	0.00	0.16	1.41	1.09
Garfield	0.47	0.38	0.13	1.11	0.00	0.24	0.14	0.46
Iron	0.05	0.06	0.00	0.20	0.00	0.00	0.00	0.00
Kane	0.00	0.00	0.27	0.20	0.00	0.00	0.00	0.00
Millard	3.63	5.33	4.55	10.96	10.64	18.78	13.13	8.22
Piute	6.13	0.63	0.94	3.22	1.53	0.40	1.26	0.52
Sevier	5.10	4.07	2.34	3.72	0.72	5.93	5.67	8.80
Washington	0.00	0.00	0.00	0.10	0.00	0.00	0.00	0.00
Wayne	0.76	0.31	0.09	0.00	0.31	0.00	0.14	0.57
REGIONAL TOTALS	17.13	11.84	8.73	20,32	13.20	25.53	21.79	19.68
Northeastern Region								
Daggett	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00
Duchesne	0.61	0.63	0.22	0.20	0.20	0.00	0.07	1.87
Uintah	0.57	2.32	0.31	1.61	1.02	0.00	2.38	0.57
REGIONAL TOTALS	1.18	2.94	0.53	1.81	1,23	0.00	2.68	2.44
Southeastern Region								
Carbon	2.64	2.82	1.94	2.51	1.33	2.60	0.97	0.93
Emery	4.29	3.38	8.12	2.72	3.17	4.15	3.20	7.18
Grand	8.31	3.01	4.28	2.81	1.74	7.15	6.86	2.23
San Juan	0.19						0.37	0.05
REGIONAL TOTALS	15.43	9.90	<u>15.24</u>	8.15	6.24	14.39	11.41	10.41
Unknown Counties	0.52	0.06	0.63	0.00	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

Table 8. Percentage distribution of chukar hunting pressure by region and county, 1981-88.

Region and					Year			
County	1981	1982	1983	<u> 1984</u>	1985	1986	1987	1988
<u>Northern Region</u>								
Box Elder	21.19	25.13	22.01	14.54	13.02	12.36	14.35	12.95
Cache	3.71	2.44	3.27	2.77	1.04	1.43	1.63	3.16
Davis	0.35	0.89	0.50	1.98	1.23	0.26	0.31	0.83
Morgan	3.24	1.97	1.97	1.98	0.88	0.91	0.18	0.49
Rich	0.12	0.14	0.25	0.33	0.09	0.07	0.06	0.29
Summit	0.87	0.70	0.88	0.20	. 0.09	0.07	0.25	1.04
Weber	0.93	1.59	2.14	0.86	1.93	1.50	1.12	0,45
REGIONAL TOTALS	30.40	32.86	31.01	22.67	18.66	16.59	17.93	19.24
Central Region								
Juab	4.28	2.72	2.93	5.15	6.16	7.22	9.65	6.41
Salt Lake	6.43	3.52	4.07	2.91	4.58	2.47	3.13	2.16
Sanpete	2.08	3.94	4.32	1.45	5.98	4.29	4.13	5.03
Tooele	17.83	18.71	20.16	18.44	25.26	24.14	20.50	24.07
Utah	11.70	14.16	13.87	12.62	13.02	11.13	11.53	11.32
Wasatch	0.17	0.84	0.96	0.99	1.32	0.20	0.37	0.16
REGIONAL TOTALS	42.50	43.88	46.31	41.57	56.34	49.45	49.34	49.18
Southern Region		^						
Beaver	0.52	1.31	0.21	0.33	1.85	0.98	1.88	2.49
Garfield	0.52	0.28	0.33	0.39	0.97	0.59	0.31	0.33
Iron	0.06	0.28	0.08	0.07	0.00	0.00	0.00	0.00
Kane	0.00	0.14	0.67	0.20	0.89	0.26	0.06	0.00
Millard	2.32	2.53	3.31	8.99	5.89	8.00	10.09	6.95
Piute	4.23	0.80	1.30	4.23	1.85	2.47	1.31	1.37
Sevier	4.23	7.36	5.45	6.61	2.99	9.95	8.33	10.53
Washington	0.00	0.05	0.00	0.13	1.06	0.00	0.12	0.00
Wayne	0.41	0.28	0.17	0.20	0.26	0.00	0.06	0.24
REGIONAL TOTALS	12.28	13.03	11.51	21.14		22.25	22.19	21.94
Northeastern Region	10,00	20.00	<u> </u>		13170	22.23	20.17	21.77
Daggett	0.00	0.00	0.08	0.00	0.00	0.00	0.06	0.00
Duchesne	0.58	1.08	0.42	0.59	0.09	0.00	0.31	0.70
Uintah	0.58	0.84	0.29	0.73	0.88	0.78	1.19	0.66
REGIONAL TOTALS	1.16	1.92	0.79	1.32	0.97	0.78	1.56	1.37
Southeastern Region	1.10	1.72	<u> </u>	1.52	0.37	0.78	1.50	1.3/
Carbon	2.61	2.77	2.05	3.90	2.73	2.34	0.94	0.58
Emery	4.98	3.05	4.90	4.10				
Grand	5.39	2.20	2.47	5.02	4.40 1.14	4.49 3.64	3.00 4.82	6.03 1.41
San Juan	0.35	0.23	0.46	0.26	0.00	0.46	0.18	
REGIONAL TOTALS		8.25						0.08
WEGIONAL TOTALS	13.32	0.43	9.89	13.28	8.27	10.93	8.96	8.1
Unknown Counties	0.35	0.05	0.46	0.00	0.00	0.00	0.00	0.12
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, 1958-88.

				0	-
	Total	Total	Hunter-days	Chukars Per	Chukars
Year	Hunters	Harvest	Afield	Hunter-day	Per Hunt
1958	11,124	19,578	25,100	0.78	1 <b>7</b> 6
1959	11,154	8,700	26,364	0.78	1.76
1960	13,252	21,733	30,610	0.33	0.78
1961	14,046	20,821	35,675	0.58	1.64
1962	11,638	33,500	35,075	0.95	1.48 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	1.13	
1971	17,917	61,151		1.12	3.11
1972	16,685	36,925	55,378	0.79	3.41
1973	13,888	48,135	46,502 50,677	0.79	2.21
1974	16,412	44,658	50,677 48,856	0.95	3.47
1975	16,156	41,151	•		2.72
1976	14,171	43,726	51,083 47,143	0.81	2.57
1977	12,691	34,155	38,873	0.93 0.88	3.09
1978	16,291	•	-		2.69
1979	15,210	65,747 51,918	54,239	1.21	4.04
1979 1980	15,210	51,511	42,254	1.23	3.41
1981	12,907		47,778	1.08	3.41
1981 1982		44,983	36,662	1.23	3.49
1983	11,326	24,460	32,691	0.75	2.16
1984	10,418 9,846	29,649	31,904	0.93	2.85
1985	7,930	20,179	30,715	0.66	2.05
1986	9,397	20,938	24,346	0.86	2.64
1987	11,276	25,346	31,672	0.80	2.70
1988	11,276	32,848	39,099	0.84	2.91
		32,057	40,088	0.80	2.85
TOTALS				•	
(1958-88)	443,029	1,255,448	1,271,687	(28.56)	(85.51)
AVERAGES					
(1958-87)	14,393	40,780	41,053	0.93	2.76

Table 10. Chukar field bag check summary, 1988.

			ALL LICENTS				COMP	COMPLETE HUNTS	S		
		1	Total	Total	Rirde/	Total Complete	Total	Total	Total	Birds/	Birds/
pu	lotal Parties	Hunters	Hours	Birds	100 Hr	Hunts	Hunters	Hours	Birds	100 Hr	Hunter
	3										!
Northern Negron	91	Ą	13.7	91	15	11	37	125	91	23	0.43
Box Elder	<u> </u>	? ?	46	7 7	1 2	9	15	46	24	25	2.00
Cache	0	<u>4</u>	?	;	; ;	;	1	ł	1	1	;
Davis	1	1	i	}		1	ł	1	1	1	}
Morgan	ł	1	1	ł	ł		1	1	ł	ŀ	1
Rich	ļ	١	1	ł	ł	<b>¦</b>	ļ		ļ	١	1
Summit	}	}	ł	ŀ	1	;	1	!			
Mohor	}	1	-	1		!		1	1	1 8	
DEGIONAL TOTALS	25	57	183	40	22	23	49	171	₹	53	0,84
Central Region							;	\$	20	Ļ	2 57
dent.	7	7	48	36*	75	7	4	84	ę,	C,	70.7
Calt Lake	1	ł	1	;	}	1	1	}	<b>\</b>	1	<b>!</b>
3 4 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	1	ł	1	ł	1	1	!	ł	1		۱ :
Januare de la constant de la constan	un	7	92	12	67	2	1	<u>∞</u>	12	67	5:
1000	۱ ۱	ł	1	ł	}	1	ł	}	1	1	1
	}	}	}	}	1	1	1	1	1	i	
Wasatch	=	16	99	84	12	12	21	99	48	73	2.29
REGIONAL TOTALS	71	3	3								
Southern Region	-	,	~	0	67	0	1	1	¦	1	1
Beaver	-	า	,	.	<b>;</b>	1	1	!	1	}	1
Garfield	1	<b>!</b>	!	•	}	1	1	1	ł	1	1
Iron	1	ľ	}	•	ł		ļ		ł	1	!
Kane	1	!	¦	;	1 :	1				1	ł
Millard	<b>a</b> 0	11	4	91	33	<b>3</b>	1			1	1
Piute	1	1	1	1	<b>\</b>	1	!	l			
Sevier	_	-	7	0	0	0	1	1	i	1	
Washington	}	}	1	ł	1	1	1	<b>¦</b>	ł		
9 0000	}	1	1	+	1			1	1		
REGIONAL TOTALS	10	21	46	18	39	0	1	1	1		1
Northeastern Region									į	1	1
Daggett	1	i	ł	!	1	1	<b>\</b>	ł			}
Duchesne	}	1	1	-	1	1	¦ '	1 6	i 7	6	1 71
Hintah	3	7	30	56	87	3		3	3 2		-
REGIONAL TOTALS	3	7	30	26	87	8	_	30	97	0	2
Southeastern Region									Ì	}	1
Carbon	ł	1	1	;	1	ļ	ļ	ł			ļ
	ł	}	1	!	1	1	}				, u
70 au	7	33	133	55	4	S	13	99			¥C: 7
( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	ł	ł	}	!	1	1		1			
Saft Justi	14	33	133	55	4	5	13	99			2.54
KEGIONAL IOIALS	3	130	458	187	4	43	96	335	147	7 44	1.63
STATE TOTALS	5	2	2								

\*Sixteen of these were banded.

Table 11. Chukar hunter success trend as determined by field bag checks, 1983-88.

	1983	83	1984	84	1985	85	19	1986	19	1987	19	1988
Region and	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/
	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
Northern Region												
8ox Elder	Ξ	0.50	7	0.09	ł	0.01	7	0.27	33	].4]	13	0.43
Cache	1	!	9	0.50	1	}	ł	1	38	1.37	23	2.00
Davis	1	1	ł	1	!	!	ł	1	52	1.00	1	!
Morgan	}	ł	1	1	ļ	1	ļ	}	1	1	1	1
Rich	!	1	ł	ł	}	!	1	1	!	!	ŀ	1
Summit	59	0.1	ł	1	ł	}	1	ł	1	1	!	1
Weber	ł	-	1	1	1	!	ţ	1	1	1	1	1
REGIONAL TOTALS	11	0.51	3	0.10	ł	0.01	7	0.27	33	1.39	23	0.82
Central Region												
Juab	1	ł	ł	}	36	1.36	1	ł	1	ł	75	2.57
Salt Lake	1	;	}	1	}	}	1	1	1	ł	}	}
Sanpete	{	ł	1	1	ļ	1	}	ł	}	1	1	ŀ
Tooele	16	0.83	}	1	1	1	}	}	22	2.00	19	1.71
Utah	1	ł	;	!	1	1	}	1	ł	1	<b>!</b>	}
Wasatch	1	ł	i:	1	l	1	}	1	{	1	1	!
REGIONAL TOTALS	16	0.83	1	ł	36	1.36	ł	1	22	2.00	73	2.29
Southern Region												
Beaver	1	ļ	1	1	28	0.88	ŀ	1	}	1	1	ł
Garfield	1	ļ	1	1	1	1	{	1	ļ	1	}	1
Iron	1	1	1	1	1	}	1	1	1	1	ł	1
Kane	1	1	1	1	1	ł	1	}		!	1	1
Millard	220	2.75	1	1	15	1.00	ł	1		1	1	1
Piute	}	!	ì	1	1	1	ł	}	ł	!	l	1
Sevier	1	1	ł	1	ŀ	1	1	1	1	ł	1	
Washington			1	1	1	ł	1	ł	ł	1	1	1
Wayne	1	ŀ	1	1	1	1	;	1	!	ł	1	
REGIONAL TOTALS	550	2.75	1	ł	23	16.0	1	i	1		1	1
Northeastern Region												
Daggett	1	1	ŀ		1	ļ	1		1	[	1	}
Ouchesne	1	1	1	ļ		1	}	1	{	ł	}	<b>!</b>
Uintah	1	[	ŀ	!	1	-	1	1	1	1	87	3.71
REGIONAL TOTALS	1	1	1	ł	:	1	1	1	+	!	87	3.71
Southeastern Region												
Carbon	ł	1	1	ł	1	1	1	;	!	!	<b>¦</b>	1
Emery	79	3.00	1	ł	;	}	100	3.00	}	}	1	1
Grand	83	3.29	1	1	4	3.14	45	1.52	11	0.67	49	2.54
San Juan	1	!	52	1.50	1	1	1	1	1	1	1	1
REGIONAL TOTALS	8	3.17	12	0.38	40	3.14	5	1.69	17	0.67	46	2.54
STATE TOTALS	22	0.98	4	0.14	2	0.12	3	0.15	32.	1.37	44	1.63

# SAGE GROUSE

# **SUMMARY**

Harvest data for 1987 indicated below average breeding populations of sage grouse for 1988. Strutting ground surveys indicated an increase in the average male grouse attendance from 1987 and populations were slightly above average.

Brood surveys showed decreased production throughout the state. Birds observed per 100 hours decreased 16 percent compared to 1987, but was about average. The ratio of young to adults decreased 9 percent.

The decrease in production, as indicated from brood counts, in 1988, was somewhat apparent in harvest statistics collected from questionnaires and from field bag checks. Hunter success rates declined. However, total statewide harvest increased 16 percent and was at the 25-year average. Age ratios derived from wings indicated a 37 percent decrease in young per 100 adults and was 52 percent below average.



## Strutting Ground Counts

The status of the sage grouse breeding population for 1988, as indicated by strutting ground counts, is shown in Table 1 and Figure 1 of this section. Results of this survey for 1988 compared to 1987 and the 1967-87 average follow:

		Percent	change from
	<u>1988</u>	<u> 1987</u>	Average
Number of grounds counted	137	+9	+28
Total male grouse counted	2,734	+50	+35
Average male grouse per ground Percent change from previous year	20	+43	+5
(comparable grounds)	+51	. <del></del>	49.45

Access for spring 1988 strutting ground counts was generally good in all regions of the state. The numbers of grouse observed increased statewide. Harvest data for 1987 indicated below average populations going into the winter of 1987-88, and the numbers of juvenile birds observed during the summer indicated decreased production during 1988. Loss of habitat continues to be the trend in most areas of the state.

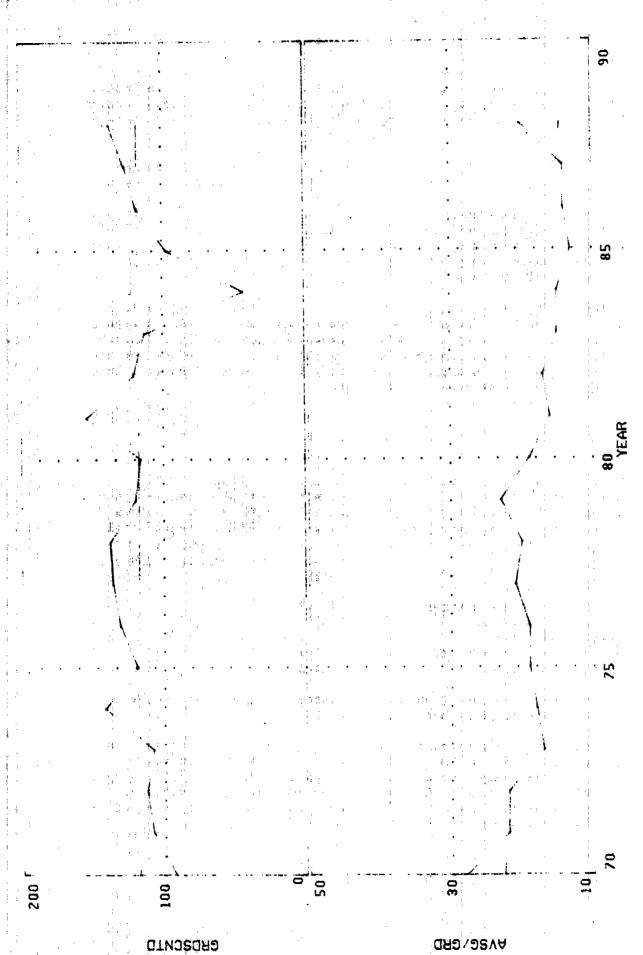
## Brood Counts

Results of the summer inventory survey for 1988 are found in Table 2. Long-term trends of young-adult ratios, mean brood size and sage grouse observed per 100 hours are shown in Tables 3-5 and Figure 2. Indices for 1988 are compared to 1987 and the previous 10-year (1978-87) average as follows:

		<u>Percent</u>	change from
	<u>1988</u>	<u> 1987</u>	Average
Total sage grouse counted	1,533	+15	-26
Young per 100 adults	145	<b>-9</b>	<del>-</del> 9
Mean brood size	4.29	-12	-6
Sage grouse observed per 100 hours	347	-16	-6
Total hours effort	442	+2	-19

The effort devoted to sage grouse brood counts was 19 percent below average, and the total number of grouse counted was 26 percent below average.

Sage grouse density decreased 16 percent from 1987, production decreased 9 percent, and both were slightly below average. A decrease in young grouse was observed, and the average brood size was 6 percent below the 10-year average. It is possible that the hot, dry weather in June and July could have negatively influenced brood survival or caused a greater dispersal of birds or earlier dispersal of broods.



gure 1. Statewide sage grouse strutting ground counts, 1970-88.

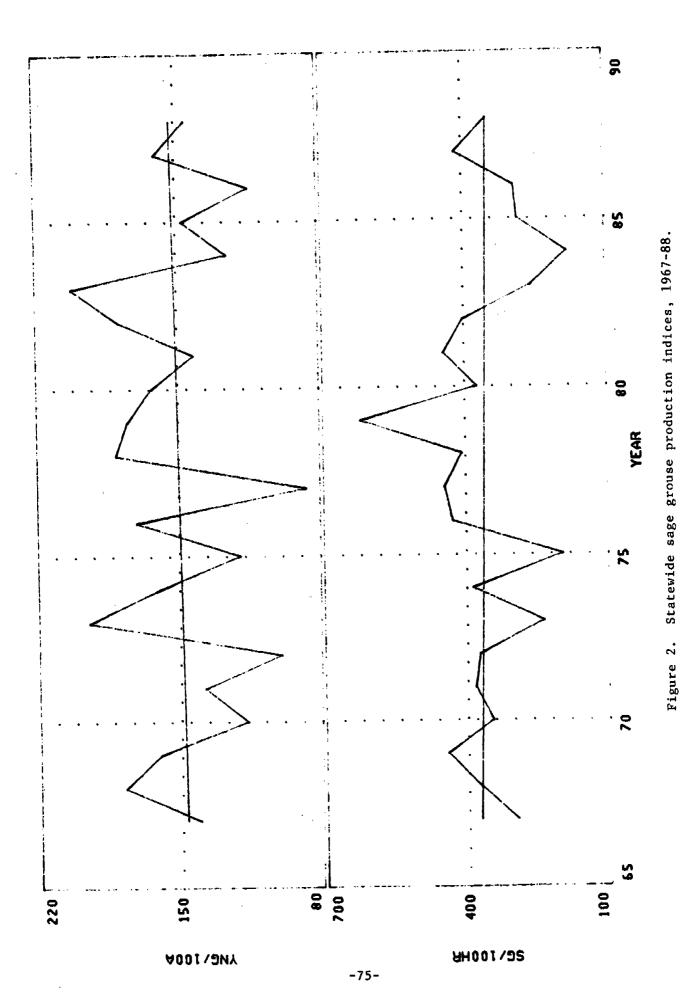


Figure 3. Statewide trend of sage grouse harvest statistics.

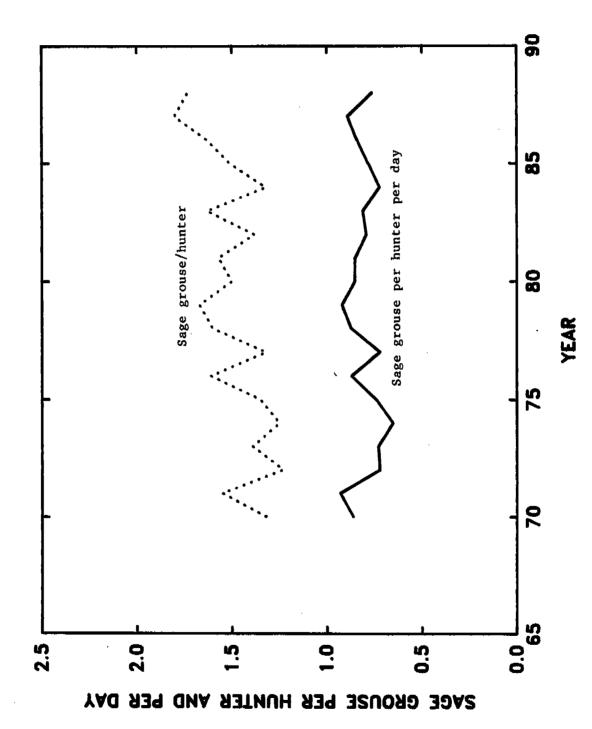
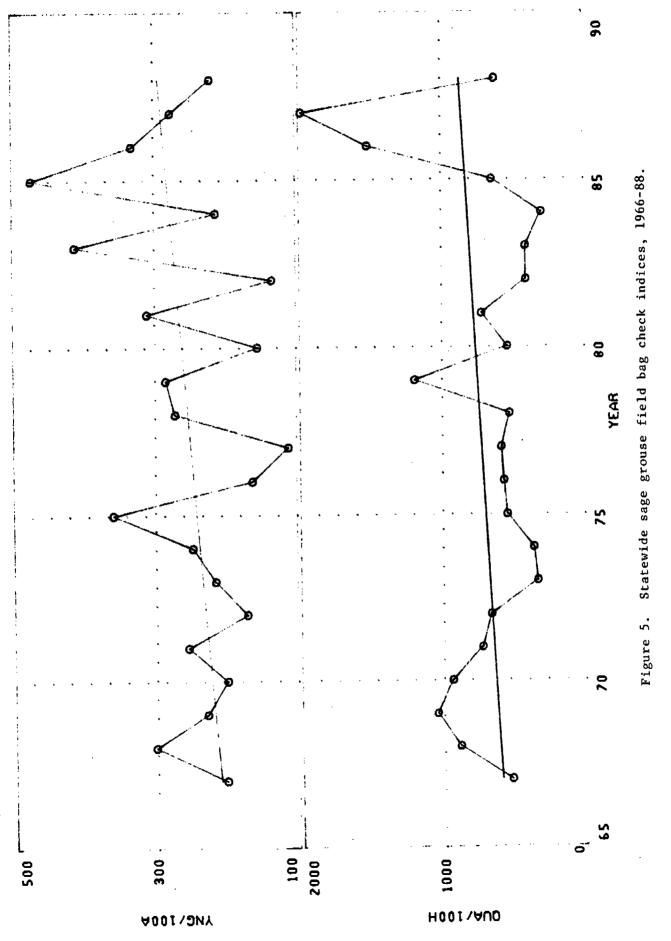


Figure 4. Statewide trend of sage grouse hunter success rates, 1968-88.



#### Harvest

## <u>Hunter Questionnaire</u>

Results of the 1988 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 1988 hunting season compared to 1987 and the 1963-87 average follow:

		<u>Percent</u>	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Sage grouse hunters	8,499	+20	-18
Sage grouse harvested	14,692	+16	0
Hunter-days afield	19,418	+36	+12
Sage grouse per hunter-day	0.76	-15	-10
Sage grouse per hunter	1.73	<b>-4</b>	+20

Sage grouse hunter per hunter-day success rates decreased 15 percent in 1988. Total statewide harvest increased 16 percent, and total sage grouse hunters increased 20 percent. Hunter success decreased 13 percent in the Northern Region where five of the seven counties were closed to sage grouse hunting. Nevertheless, 39 percent of the harvest and 45 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 1988 is shown in Table 11. Hunter success trends determined via this method are shown in Table 12 and Figure 5. Results of the 1988 survey compared to 1987 and the 1978-87 average follow:

		Percent (	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total hunters checked	1,106	+7	-28
Total hours hunted	5,080	2	-24
Sage grouse per hunter			
(complete hunts)	1.04	-10	+9
Sage grouse bagged per 100 hours	18	-14	+6
Average hours per hunter-day			
(complete hunts)	5.4	+35	+10
Hours hunted per grouse bagged	5.2	+6	-2

Much of Utah was dry with birds concentrated around available water. Hunter success rates from field bag checks were similar to mail questionnaire success rates. Both were down last year but near the long term average.

# Sex and Age Composition of the Harvest

A summary of the sex and age composition of harvested sage grouse in 1988 is found in Table 13 and the trend from 1985-88 in Table 14.

Following are data derived from wing surveys in 1988 compared to 1987 and the 1973-87 average:

	<u>1988</u>	Percent 1987	change from Average
Sample size	942	+18	-20
Percent males	31	-26	-26
Percent females	69	+19	-19
Young per 100 adults	114	-37	-52
Young per 100 hens (adult)	166	-35	+8

Analysis of wings collected at checking stations during the 1988 season indicates that statewide production was down compared to 1987, and was below the previous 15-year average.

Table 1. Summary of sage grouse strutting ground counts by region and county, 1978-88.

Region and				Year							
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
MORTHERN REGION											
No. etrutting grounds counted	<u>e</u>	24	28	35	75	11	∞	32	2	<b>8</b> 2	15
Total male drouse counted	452	763	86	ווג	384	322	216	309	288	324	419
County average (all strutting grounds)	72	35	35	23	92	61	23	2	59	18	28
% change from previous year - comparable grounds	Ę.	69+	<b>6</b>	-35	-24	-29	<b>\$</b>	£+	<b>11</b> +	-12	+33
CACHE		i i								ļ ļ	
No. strutting grounds counted	-	m	-	m	-	0	_	0	2	-	_
Total male grouse counted	35	33	82	82	19	0	ιΩ	ł	ಹ	0	9
County average (all strutting grounds)	15	=	82	9	19	ı	rC	1	4	0	Q)
% change from previous year - comparable grounds	4	0	+20	-33	+28	I	I	ŀ	1		+100
MORGAN											
o No. strutting grounds counted	m	m	m	ო	ო	m		m	ო	α.	_
	Ξ	75	131	27	89	33	2	33	22	92	19
County average (a) strutting grounds)	37	52	4	6	22	2	2	11	7	13	19
% change from previous year - comparable grounds	+158	-32	<del>-</del> 476	-57	91+	-3	<u>ę</u> ,	٠١,000	-33	+18	-51
RICH					į						
No. strutting grounds counted	5	=	=	13	7	Φ	9	18	Ξ	15	m
Total male grouse counted	417	382	236	259	153	188	103	399	296	431	319
County average (all strutting grounds)	82	33	23	20	23	21	17	22	27	36	23
% change from previous year - comparable grounds	+17	+11	40	<b>\$</b>	-21	+5	7	+49	-28	<del>5</del> 3	2-
SUMMIT											
No. strutting grounds counted	9	∞	-	7	2	7	_	0	7	7	₽,
Total male grouse counted	2	116	75	9	Ξ	4	91	1	23	23	11
County average (all strutting grounds)	5	15	5	6	9	7	92	ł	က	4	7
% change from previous year - comparable grounds	-59	φ	+15	+13	-20	ዋ	+78	1	I	<b>β</b>	-32
REGIONAL TOTALS											1
No. strutting grounds counted	43	<b>6</b>	4	وا	28	98	11	23	33	40	83
Total male grouse counted	1,086	1,368	1,299	1,105	632	587	342	741	637	908	783
(all strutting grounds)	22	78	93	8	23	9	20	14	19	20	24
% change from previous year - comparable grounds	+ 10	+29	-5	-27	-20	-22	ବ	+27	ထု	+16	Ţ

Don't control of the				Year							
County	1978	1979	1980	1961	1982	1983	1984	1985	1986	1987	1988
SOUTHERN REGION		•									
Me chaite arounds counted	Ξ	ď	<b>e</b> c	=	σ	∞	7	1	æ	0	90
Total male common countries	224	211	6	298	359	197	133	ŀ	152	175	72
County sections (2) stration propods)	2	23	: 2	27	96	<b>.</b> 2	2	1	16	61	3
% change from previous year - comparable grounds	+24	0	-48	+114	+78	-12	-46	ł	+13	0	+24
WAYNE											
No. strutting grounds counted	15	6	æ	7	14	<u>*</u>	(15		13	E	22
Total male grouse counted	991	122	35	284	300	123	(88)	1	120	182	326
County average (all strutting grounds)	7	25	4	92	12	123	<u>E</u>	1	σ.	7	52
% change from previous year - comparable grounds	-31	-59	1	1	1	ı	1	1	-15	+52	+79
BEAVER											
No. strutting grounds counted	_	9	S	7	1	1	4	6	4	4	m
Total male grouse counted	99	134	113	140	131	117	8	45	55	25	<del>9</del>
County average (all strutting grounds)	თ	22	23	20	19	13	12	15	7	E1	22
% change from previous year - comparable grounds	-51	+137	Ŧ	9	φ	Ŧ	+78	1	+22	ς	I
NGR	1										
No. strutting grounds counted	2	ഹ	9	1	σ,	4	1	ĸ	9	4	9
Total male grouse counted	83	83	84	101	::	105	ł	8)	131	4	Ξ
County average (all strutting grounds)	6	. 41	7	7	12	56	1	92	22	9	61
% change from previous year - comparable grounds	Ŧ	+48	Ŧ	+20	۳	+27	1	}	+49	=	-13
SEVIER											
Mo. strutting prounds counted	4	4	•	7	4	}	1	1	7	1	7
Intal male grouse counted	23	6	ł	0	2	ı	ł	}	0	;	0
County average (all strutting grounds)	9	2	1	0	-	1	1	1	1	l	1
% change from previous year - comparable grounds	÷	09	}	l		1	1	1	1	1	ı
MILLARD											
No. strutting grounds counted		1	*	-	-	!	_	-	_	!	1
Total male grouse counted	7	1	ŀ	22	22	1	₹	7	m	1	1
County average (all strutting grounds)	7	ŀ	1	22	22	ł	₹	7	m	1	ł
% change from previous year - comparable grounds	+367	ŀ	}	!	0	1	1	ł	+33	1	1
REGIONAL TOTALS											
No. strutting grounds counted	45	33	23	42	44	23	72	21	34	e 1	7 ?
Total male grouse counted	280	169	326	845	928	563	185	391	461	473	<del>(</del> )
Average grouse per ground (all strutting grounds)	3	12		50	12	24	55	9	14	9 :	3 :
% change from previous year - comparable grounds	-13	-22	-35	+46	+33	φ	-33	1	+12	+13	<del>4</del>

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

Table 1 (continued)

Region and				Year							
County	1978	6/61	1980	1981	1982	1983	1984	1985	1986	1987	1988
REGION											
SANPETE											
No. strutting grounds counted	7	7	7	7	7	7	7	2	7	2	7
Total male grouse counted	7	9	σ,	თ	=	80	0	0	0	0	0
County average (all strutting grounds)	4	ന	2	ഹ		4	1	1	i	ł	•
le grounds	+75	4 4	+17	0	+22	-27	-100	0	1	ł	•
TOOELE											
No. strutting grounds counted	ഹ	Ŋ	ĸ	ഹ	ß	Ó	œ	9	9	ហ	L
Total male grouse counted	37	316	131	4	78	28	23	22	85	96	80
County average (all strutting grounds)	7	ន	56	σ <b>n</b>	9	r.	4	6	16	91	<u>8</u>
le grounds	-25	-38	+13	-64	-64	0	-18	+139	+149	<b>71</b> +	ų
WASATCH											
No. strutting grounds counted	7	7	7	7	2	2	7	2	7	2	2
Total male grouse counted	184	119	45	₹	82	54	57	83	117	<b>5</b>	25
County average (all strutting grounds)	35	8	ន	ឌ	6	23	53	32	29	27	56
% change from previous year - comparable grounds	F	-35	-62	0	9	+200	9	Ę	+205	-54	4
JUAB											
No. strutting grounds counted										_	-
Total male grouse counted										6	7
County average (all strutting grounds)		٠								6	7
% change from previous year — comparable grounds										0	. +56
REGIONAL TOTALS											
No. strutting grounds counted	6	5	9	σ	6	20	2	10	9	<b>o</b> n	2
Total male grouse counted	228	197	185	901	21	8	8	118	199	150	155
Average grouse per ground (all strutting grounds)	52	22	23	=	9	6	∞	12	81	11	91
% change from previous year - comparable grounds	-21	-35	-24	Ę,	<u>4</u>	+58	÷	48	+170	-75	Ţ

Table 1 (continued)

Region and				Year							
	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
NORTHEASTERN REGION DAGGETT					,						
No. strutting grounds counted	т	æ	ഹ	9	9	9	ł	ស	9	ဖ	9
Total male grouse counted	78	47	ຣ	89	82	45	ł	52	22	56	29
County average (all strutting grounds)	92	91	91	=	ო	7	ł	ນ	က	4	=
% change from previous year - comparable grounds	+42	40	-19	+20	-57	+56	ı	<del>4</del> 3	1	+16	+205
DUCHESNE											
No. strutting grounds counted	7	10	91	91	15	15	1	13	7	14	15
Total male grouse counted	722	83	120	112	156	178	1	121	117	104	41
County average (all strutting grounds)	91	O	80	1	2	15	ł	6	<b>∞</b>	7	4
% change from previous year - comparable grounds	+37	-35	ဌာ	0	+15	<b>417</b>	ı	-29	1	-12	-62
UINTAH						ļ					ł
No. strutting grounds counted	13	=	12	9	12	91	}	12	7.	7	56
Total male grouse counted	454	338	126	174	242	273	ł	190	216	159	669
County average (all strutting grounds)	35	31	=	17	27	17	ł	91	15	=	27
% change from previous year - comparable grounds	<del>1</del> 63	-18	-67	+56	4	-51	ł	-21	1	-26	+260
GRAND											
No. strutting grounds counted											7
Total male grouse counted											თ
County average (all strutting grounds)											ហ
% change from previous year - comparable grounds											1
REGIONAL TOTALS (N.E.)											
No. strutting grounds counted	8	24	33	32	33	37	I	30	34	34	49
Total male grouse counted	759	478	297	354	416	396	ł	336	339	289	822
Average grouse per ground (all strutting grounds)	52	20	6	=	5	13	ŀ	Ξ	9	6	82
% change from previous year – comparable grounds	151	-25	-48	+27	+17	ጥ	ł	-26	1	-18	+140
						į					

Table 1 (continued)

County	1078										
	2	1979	1980	1981	1982	1983	1984	1985	1986	1987	1998
SOUTHEASTERN REGION											
CARBON											
No. strutting grounds counted	ഹ	ł	. 1	9	_	-	1	1	2	7	2
Total male grouse counted	4	1	1	2	0	91	1	}	32	22	196
County average (all strutting grounds)	œ	ł	ł	m	ł	91	1	ł	91	œ	82
% change from previous year - comparable grounds	\$	1	}	1	ł	+100	I	l	1	-27	+142
EMERY				,							
No. strutting grounds counted	_	1	ł	١	8	1	ł	-	-	2	7
Total male grouse counted	12	ł	ł	١	0	ł	1	12	=	10	12
County average (all strutting grounds)	12	ł	ł	ļ	ហ	ł	1	12		S	9
% change from previous year - comparable grounds	-25	t	1	ŀ	I	1	I	ł	eρ	-18	+20
SAN JUAN											
. No. strutting grounds counted	ß	4	ĸ	4	4	9	4	4	4	4	4
Total male grouse counted	96	29	4	83	47	29	22	39	53	33	32
	18	1	<b>80</b>	16	12	0	14	10	7	<b>o</b> n	<b>&amp;</b>
%change from previous year - comparable grounds	-17	Ŧ	-33	+65	-25	+52	-14	-29	-26	+28	<b>o</b> p
REGIONAL TOTALS											
No. strutting grounds counted	Ξ	4	ĽĊ	2	7	7	4	4	7	53	16
Total male grouse counted	149	<i>L</i> 9	4	65	26	75	57	33	72	<b>00L</b>	240
Average grouse per ground (all strutting grounds)	7	11	<b>6</b> 0	7	<b>&amp;</b>	Ξ	7	2	2	<b>&amp;</b>	15
%change from previous year - comparable grounds	-37	7	-33	+58	-28	+34	-1 <del>4</del>	-29	-26	0	+74
STATE TOTALS											
No. strutting grounds counted	138	120	116	154	121	113	43	97	118	126	137
	2,802	2,808	2,148	2,469	2,089	1,711	664	1,234	1,708	1,818	2,734
Average grouse per ground (all strutting grounds)	. 07	ีย	91	91	11	51	5	13	14	7	20
	-15	-13	-20	ሞ	7	<b>~</b>	-18	ĩ	ŧ	7	<del>1</del> 2

\*No counts because of snow conditions.

Table 2. Sage grouse summer inventory summary, 1988.

	0	Distinct	κt		Mixe	Mixed Yng										
Region and	7	Broods	5	Mean	₹	& Adults	Adults	Total	Total	Young/	Veh.	Ī	Hours of Effort	of Eff	irt	Birds/
County	<b>72:</b>	# Ad	Yng	Brood	Ad	Yng	w/o Yng	Adults	Yng	100 Ad	Miles	Veh.	Horse Walk		Total	100 Hr
Northern Region																
Box Elder	2	2	38	3.80	92	27	34	9	65	108	0	7	72	_	18	694
Cache	•	0	0	1	Ō	0	-	_	0	;	295	33	0	2	36	m
Davis	ł	1	1	1	1	1	1	}	ŀ		1	1	I	1	1	ŀ
Morgan	1	ł	1	1	1	}	:	ŀ	ł	ł	ł	1	1	1	1	}
Rich	33	37	158	4.27	23	48	75	135	506	153	1,480	73	0	46	119	287
Summit	-	-	4	4.00	0	0	7	<b>60</b>	4	20	20	_	0	m	4	300
Weber	1	1	1.	ţ	ł	1	1	ł	ł	1	1	1	1	1	1	1
REGIONAL TOTALS	48	46	200	4.17	39	75	117	204	275	135	2,092	107	15	55	771	271
Central Region																
Juab	ლ	m	6	6.33	0	0	2	S	19	380	216	91	0	0	92	150
Salt Lake	1	1	1	1	1		1	1	l	1	1	1	1	1	1	ł
Sanpete	ŀ	ł	1	1	1	1	1	ł	1	1	1	1	1	1	ŀ	ł
Tooele	2	2	35	3.50	ß	2	93	45	45	00L	328	20	34	4	28	155
Utah	0	0	0	0.00	2	m	0	7	m	120	9	4	0	•	4	125
Wasatch		-	9	6.00	0	0	-	. 2	9	300	94	11	7	12	3	23
REGIONAL TOTALS	14	14	09	4.29	7	13	33	54	73	135	678	51	43	16	108	138
Southern Region												!				
Beaver	!	i	;	1	ı	1	ł	1	۱	ı	ł	1	1	1	1	;
Garfield	2	2	8	4.60	9	56	30	20	72	144	82	17	œ	7	23	452
Iron	6	6	33	3.67	7	12	21	37	54	146	145	1	9	0	9	1,517
Kane	1	1	!	ł	1	1	;	1	ŀ	1	ł	!	}	1	1	1
Millard	1	ŀ	1	1	ł	1	1		ŀ		ł	}	1	1	1	1
Piute	1	ŀ	}	1	1	I	ł	1	ł	ł	1	1	1	1	١	ł
Sevier	7	7	7	7.00	2	7	0	4	21	525	20	9	0	0	9	417
Washington	1	1	1	}	1	I	ł	;	ł	!	1	}	ł	1	1	ł
Wayne	7	-	4	6.29	7	21	62	76	65	98	65	10	11	0	27	542
REGIONAL TOTALS	82	82	137	4.89	26	75	113	167	212	127	315	33	31	2	99	574
Northeastern Region	티															
Daggett	=	=	49	4.45	რ	Q	<b>8</b> 2	35	28	181	176	13	0	0	19	474
Ouchesne	S	2	18	3.60	က	5	0	∞	23	288	195	16	0	9	22	14)
Uintah	38	38	154	4.05	47	104	72	157	258	164	319	28	17	2	20	830
REGIONAL TOTALS	72	54	22.1	4.09	53	118	8	197	339	172	9	63	17	Ξ	16	589
Southeastern Region	티															
Carbon	1	1	1	}	1	}	}	l	1	}	ł	1	;	1	ł	ł
Emery	ł	1	}	<b>¦</b>	1	1	1	1	ł	ł	1	1	1	1	1	i
Grand	1	1	1	!	ļ	1	1	Í	ł	1	1		1	ł	ł	l
San Juan	0	0	0	0.00	2	æ	2	4	8	200	1	ı	1	1.	1	ł
REGIONAL TOTALS	٥	9	0	0.00	2	8	2	4	80	200	1	ł	1	1	1	1
STATE TOTALS	144 1	144	819	4.29	127	289	355	626	206	145	3,775	254	104	84	442	347
[ ] Estimate																

Table 3. Trend of sage grouse young per 100 adults, 1978-88.

County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	125	83	푏	89	127	135	75	265	178	8	108	
Cache	ł	0	300	122	١	ł	ı	1	١	1	I	
Davis	ł	ļ		1	1	ł	ł	1.	1	1	1	
Morgan	414	99	8	120	ł	240	1	300	ł	200	1	
Rich	273	<u>ē</u>	33	8	82	1	164	8	2	116	153	
Summit	316	221	74	11	ස	<b>67</b>	1	ŀ	400	167	20	
Weber	ŀ	1	1	ŀ	1	ł	1	ı	. 1	:	;	
REGIONAL TOTALS	194	66	29	82	16	145	126	130	103	115	135	115
Central Region												
Juab	46	262	204	245	1	1	I	ł	1	ł	380	
Salt Lake	ŀ	l	ł	ŀ	1	1	ŀ	ł	ł	ł	ł	
Sanpete	224	75	267	348	314	305	ł	ł	ł	1	ł	
Tooele	283	449	143	10	107	176	90L	125	90	207	100	
Utah	ł	1	ł	ł	1	ł	ł	I	I	1	350	
Wasatch	93	163	170	236	166	157	175	43	200	509	300	
REGIONAL TOTALS	112	204	171	171	209	214	155	64	120	209	135	163
Southern Region												
Beaver	156	0	142	5	35	1	400	43	ł	32	1	
Garfield	176	272	383	8	128	133	<u>동</u>	229	125	144	144	
Iron	313	229	569	113	148	150	ස	1	250	198	146	
Kane	1	21	1	ł	1	1,000	ł	1	1	<del>6</del>	1	
Millard	1	1	1	1	ł	İ	ł	ł	1	1	1	
Piute	ł	I	1	1	I	}	ł	1	38	1	1	
Sevier	625	1	1	ı	1	1	ł	ŀ	ŀ	I	525	
Washington	1	1	I	I	1	1	ŀ	i	ı	1	1	
Wayne	308	288	162	263	193	104	411	152	44	455	86	
REGIONAL TOTALS	224	230	235	154	130	86	35	137	105	216	127	162
Northeastern Region												
Daggett	198	169	200	230	369	88	220	170	2	124	181	
Duchesne	199	127	248	235	302	240	145	297	98	137	288	
Uintah	269	279	401	253	183	375	29	261	127	192	164	
REGIONAL TOTALS	226	193	297	242	237	265	126	255	131	159	172	213
Southeastern Region												
Carbon	164	400	ł	64	1	l	238	400	133	150	1	
Emery	1	1	ŀ	1	ı	1	ł	ł	ŀ	ı	1	
Grand	1	. <b>7</b>	ł	ł	1	ł	l	ł		١	1	
San Juan	94	1	400	350		23	200	88	89	1	200	
REGIONAL TOTALS	142	223	450	83	ļ	57	267	122	8	150	200	175
		1		***								

Table 4. Irend of sage grouse mean brood size, 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	4.76	4.32	3.36	3.97	3.92	5.00	5.75	5.31	3.57	3.88	3.80	
Cache	1	}	1.00	3.50	1	ł	1	ł	1	ł	!	
Davis	I	1	ł	ł	ł	I	1	I	ł	}	ı	
Morgan	6.44	4.00	5.60	5.14	1	4.20	1	3.00	ł	5.00	]	
Rich	5.24	4.58	3.36	3.67	4.45	1	3.92	3.96	5.08	5.00	4.27	
Summit	5.77	5.00	3.78	3.67	2.67	3.33	1	ł	4.00	5.00	4.00	
Weber	l	1	-	ŀ	-	1	-	}	1	1	<b>!</b>	
REGIONAL TOTALS	5.20	4.52	3.61	3.94	4.00	4.25	4.36	4.39	4.74	4.82	4.17	4.38
Central Region												
Juap	3.33	4.25	5.00	2.00	1	}	}	1	ł	ł	6.33	
Salt Lake	1	ł	ł	1	l	1	ł	1	ł	I	}	
Sanpete	4.57	6.44	5.58	4.80	6.36	5.83	1	}	ł	ŀ	ł	
Tooele	5.13	5.64	4.09	3.00	3.33	4.33	3.33	3.29	3.25	3.60	3.50	
Utah	}	1	i	1	I	ł	1	ŀ	ł	1	; <b>;</b>	
Wasatch	4.90	4.90	4.09	3.83	4.81	3.14	4.90	2.00	5.00	6.94	00.9	
REGIONAL TOTALS	4.82	5.18	4.41	3.44	5.32	4.37	4.54	2.56	3.60	5.42	4.29	4.37
Southern Region				1)								
Beaver	4.29	4.00	4.14	5.50	4.00	1	4.00	5.00	I	5.00	١	
Garfield	4.00	4.39	5.00	4.50	3.43	3.43	4.00	4.50	2.00	4.00	4.60	
Iron	5.50	4.68	4.12	3.57	6.40	3.00	3.50	I	4.00	4.64	3.67	
Kane	1	1	ł	1	1	5.00	1	ł	1	4.00	1	
Millard	1	ł	1	ŀ	1	1	1	!	ŀ	ł	1	
Piute	ŀ	1	1	}	l	1	1	ļ	1	}	}	
Sevier	6.25	1	ł	1	ł	1	ŀ	1	1	}	7.00	
Washington	!	1	}	ł	1	1	ł	ł	I	1	ł	
	4.56	4.74	4.60	3.96	4.43	3.67	2.00	3.57	6.00	6.14	6.29	
REGIONAL TOTALS	4.55	4.61	4.48	3.93	4.52	3.62	4.27	4.00	4.29	4.89	4.89	4.32
Northeastern Region												
Daggett	5.02	5.10	4.75	4.11	5.13	5.80	4.63	3.00	1.00	4.00	4.45	
Duchesne	4.00	4.73	4.45	3.91	5.32	4.59	3.77	4.73	4.29	3.54	3.60	
Uintah	4.87	4.67	5.55	5.27	4.95	5.13	3.00	5.00	5.44	5.55	4.05	
REGIONAL TOTALS	4.94	4.79	5.05	4.50	5.10	5.00	3.96	4.43	4.94	4.59	4.09	4.73
Southeastern Region												
Carbon	5.17	4.67	1	}	١	1	4.33	4.00	4.00	1.50	I	
Emery	1	ŀ	Ì	l	I	I	1	1	1	ļ	1	
Grand	1	2.00	1	1	1	ł	I	}	1	ļ	1	
San Juan	1	1	1	3.50	ł	4.00	5.00	3.50	3.00	1.	!	
REGIONAL TOTALS	5.17	3.25		3.50	1	4.00	4.50	3.67	3.40	1.50		3.62
STATE TOTALS	4.97	4.77	4.51	4.05	4.85	4.58	4.27	4.04	4.53	4.86	4.29	4.54
	Ì											

Table 5. Irend of sage grouse observed per 100 hours, 1978-88.

County         1978         1979           Northern Region         452         1,835           Box Elder         452         1,835           Cache         —         0           Davis         —         0           Morgan         160         412           Rich         838         952           Summit         369         226           Weber         —         —           Central Region         255         588           Salt Lake         —         —           Sanpete         594         743           Tooele         —         —           Utah         —         —           Wasatch         767         652           REGIONAL JOTALS         556         695           Southern Region         Beaver         242         89           Garfield         545         468           Iron         —         —           Sag         —         —         —           Southern Region         220         1,315           Kane         —         —         —           Sag         —         —         —	1979	1080	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
255 255 256 257 257 257 265 265 265 265 265 265 265 270 270 270		1200		7.5.2							
452 160 389 389 369 767 767 767 242 545 220											
255 265 270 270 270 270 270 270 270 270 270 270	835	575	571	238	8	195	380	304	475	694	
160 838 369 169 255 167 167 167 167 168 169 169 169 169 169 169 169 169 169 169	0	154	232	ł	ł	Ξ	1	1	0	က	
160 838 369 369 767 767 767 767 767 767 767 767 767 7	1	Ì	}	}	ŀ	ł	1	I	ŀ	ł	
838 369 400 255 265 767 767 242 546 545 1,5	412	427	471	11	೫	ł	19	ł	9	ł	
369 400 255 265 767 767 242 546 1,5	952	393	648	388	1	198	288	282	364	287	
255 	226	Ξ	135	901	8	}	ł	21	480	300	
255  594 265  767 767 556 545 545	1	ł	ł	ı	ł	ł	ł	ļ	1	ł	
255  594 265  767 767 556 548 545  545	545	315	440	144	82	310	186	398	251	172	267
255  594 265  767  556 545  545  1,-								r			
265 265 767 556 242 545 1,1	588	506	380	1	1	1	0.0	ļ	ŀ	150	
265 265 767 556 242 545 1,1	1	ł	1	ł	ì	ł	ł	I	ł	ł	
265 767 556 242 545 545 1,5	743	319	303	426	214	1	1	ł	I	1	
242 542 545 545 545	9//	710	627	207	203	105	242	746	742	150	
242 542 545 545 1-220	1	1	ł	ł	ļ	ł	ł	I	ł	125	
242 245 545 120 1	652	360	147	362	41	122	267	25	792	27	
242 545 220 1	695	410	347	342	111	118	244	310	776	118	391
ar 242 leld 545 . 220 l					i !						
ield 545	83	950	613	8	792	167	429	;	575	1	
C 25 -	468	229	480	۲62	300	257	295	225	275	452	
	,315	342	1,085	315	7	260	1	466	1,331	1,517	
	588	1	1	ł	275	!	1	1	200	ł	
Millard	1	1	I	ł	ł	ł	I	1		ł	
Piute	1	ł	1	I	1	ł	ł	316	1	I	
Sevier 207 -	1	-1	I	ı	ï	1	ŀ	I	1	417	
Washington	I	1	I	1	1	1	ł	I	1	ł	
Wayne 444 49	494	338	538	783	612	381	358	344	793	545	
REGIONAL TOTALS 380 61	617	346	653	429	392	304	342	300	732	574	450
Northeastern Region											
Daggett 637 1,274	274	489	800	300	467	308	284	114	492	474	
	258	446	574	845	433	454	325	165	382	141	
Uintah 397 70	705	474	398	1.036	998	314	888	813	642	830	
REGIONAL TOTALS 427 67	673	483	507	800	631	364	490	474	509	589	536
Southeastern Region						٠					
Carbon 295 20	200	ഹ	219	ł	1	415	!	200	28	1	
Emery 0 -	1	1	ı	;	ł	ł	ł	;	1	1	
Grand 71 24	240	ł	I	ł	ł	1	1	ł	1	I	
San Juan 194	1	100	20	1	20	57	231	400	1	I	ł
	210	36	141	1	20	194	235	172	28	1	156
STATE TOTALS 407 62	621	374	444	401	258	180	284	291	415	347	368

Table 6. Summary of sage grouse hunter success and distribution of harvest and hunter pressure by region and county, 1988.

Region and	Sample	Hunter-days	Birds	Birds per	% of	% of
County	_Size*	Afield	Bagged	Hunter-day	Pressure	Harvest
Northern Region						
Box Elder	99	3,105	2,421	.78	15.99	16.47
Cache**	37	1,485	701	.47	7.65	4.77
Davis**	8	317	0	0.00	1.63	0.00
Morgan**	10	550	200	.36	2.83	1.36
Rich	64	2,187	1,769	.81	11.26	12.04
Summit**	13	467	267	.57	2.40	1.81
Weber**	22	601	384	.64	3.09	2.61
REGIONAL TOTALS	253	8.715	5,743	.66	44.88	39.09
Central Region						
Juab**	4	133	116	.88	.68	.79
Salt Lake**	2	33	16	.50	.17	.11
Sanpete**	14	801	183	.23	4.12	1.25
Tooele	28	985	267	.27	5.07	1.81
Utah	24	751	317	.42	3.86	2.15
Wasatch**	11	550	267	.48	2.83	1.81
REGIONAL TOTALS	83	3,255	1,168	.36	16.76	7.95
Southern Region					10.70	
Beaver	9	350	267	.76	1.80	1.81
Garfield	13	484	567	1.17	2.49	3.86
Iron	10	384	233	.61	1.97	1.59
Kane	1	16	16	1.00	.08	.11
Millard**	ō	0	0	0.00	0.00	
Piute	12	317	300	.95	1.63	0.00
Sevier	28	1,101	734	.67		2.04
Washington**	28	83			5.67	5.00
Wayne	32	951 951	0 _ 1,235	0.00	.42	0.00
REGIONAL TOTALS	107			1.30	4.90	8.40
	10/	3,689	3,356	.91	18.99	22.84
Northeastern Region	_	0.50	200	1 00		
Daggett	6	250	300	1.20	1.28	2.04
Duchesne	17	384	384	1.00	1.97	2.61
Uintah	65	2,320	2,587	1.12	11.95	17.61
REGIONAL TOTALS	8.8	2,955	3,272	1.11	15.21	22.27
Southeastern Region						
Carbon	16	417	. 434	1.04	2.14	2.95
Emery	5	217	166	.77	1.11	1.13
Grand	0	0	0	0.00	0.00	0.00
San Juan_	1	33	333	10.00	.17	2.27
REGIONAL TOTALS	22	667	935	1.40	3.43	6.36
Unknown Counties	4	133	217	1.63	.68	1.47
STATE TOTALS	557	19,418	14,692	.76	100.00	100.00

<sup>\*\*</sup>Closed to sage grouse hunting in 1988.

Table 7. Summary of sage grouse bagged per hunter-day by region and county, 1981-88.

Region and				Year				<del></del> -
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	1.26	0.78	0.88	0.80	0.73	0.94	1.05	0.78
Cache	0.40	0.50	0.47	0.54	0.21*	0.18*	0.38*	0.47
Davis	0.22*	0.36*	0.45*	0.18*	0.25*	0.25*	0.00*	0.00
Morgan	0.74	0.30	0.15	0.32	0.25*	Q.47 <b>*</b>	1.25*	0.36
Rich	0.53	0.51	0.44	0.50	0.30	0.58	0.88	0.81
Summit	0.38	0.32	0.50	0.23	0.20*	0.50*	0.55*	0.57
Weber	0.16	0.39	0.47	0.67	0.43*	0.57*	0.56*	0.64
REGIONAL TOTALS	0.76	0.56	0.58	0.55	0.49	0.67	0.76	0.66
Central Region		<del></del> -						-
Juab	1.14*	0.17	0.36*	0.33*	4.00*	3.00*	0.60*	0.88
Salt Lake	0.75*	2.08*	0.50*	0.25*	0.08*	2.54*	0.00*	0.50
Sanpete	1.40*	0.31*	0.33*	0.64*	0.44*	0.38*	0.62*	0.23
Tooele	0.54	0.86*	0.30*	0.53*	0.23*	1.54*	1.10*	0.27
Utah	0.64	0.50*	1.08*	0.77*	0.45*	0.42	0.62	0.42
Wasatch	0.50	0.54	0.65	0.28	0.19	0.65*	0.58	0.48
REGIONAL TOTALS	0.68	0.62	0.63	0.51	0.46	0.85	0.70	0.36
Southern Region								
Beaver	1.06	1.24	0.95	1.29	0.33	0.90	1.08	0.76
Garfield	1.34	1.12	1.33	1.33	0.78	0.68	1.50	1.17
Iron	0.92	0.92	1.35	1.00	1.85	0.82	1.29	0.61
Kane	0.71	0.00		0.00	0.50	0.13	0.00	1.00
Millard	0.00	1.00*	1.88*	0.67*	2.00*	0.50*	1.00*	0.00
Piute	2.00	0.93	1.30	1.44	0.95	0.50	0.58	0.95
Sevier	0.45	0.85	0.67	0.67	0.40	0.43	1.00	0.67
Washington	0.00	5.50*		0.00*	0.50*	0.00	0.00*	0.00
Wayne	1.42	1.22	1.26	1.25	1.19	1.19	0.60	1.30
REGIONAL TOTALS	1.17	1.21	0.16	1.19	0.92	0.75	0.99	0.91
Northeastern Region					V.,,	<del> </del>	<u> </u>	<u> </u>
Daggett	0.84	1.00	1.04	0.16	0.92	0.45	1.00	1.20
Duchesne	1.00	0.85	1.31	0.50	0.67	1.00	0.91	1.00
Vintah	1.01	1.16	1.15	0.98	1.08	1.30	1,25	1.12
REGIONAL TOTALS	0.97	1.04	1.17	0.76	0.95	1.16	1.17	1.11
Southeastern Region	<u> </u>	#*04		0.70	0.33	1.10		<u>, 4.11</u>
Carbon	0.19*	0.44*	0.27*	0.33*	0.60	1.24	1.09	1.04
Emery	1.00*	0.00*	0.08*	1.50*	0.63	2.71	1.00	
Grand	0.38	0.25						0.77
San Juan	0.00	1.50*	1.00*	0.00	1.00	0.40	2.00	0.00
REGIONAL TOTALS				0.00*	0.00	1.33	0.00	10.00
REGIONAL TOTALS	0.28	0.47	0.26	0.90	0.60	1.44	1.13	1.40
Unknown counties	0.22	2.00		7.50	5.67	2.00	0.00	1.63
Illegal areas (Total)	0.00	(0.62)*	(0.60)*	(0.60)*	(0.46)*	(0.72)	0.00	0.00
STATE TOTALS	0.85	0.79	0.81	0.72	0.78	0.84	0.89	0.76

<sup>\*</sup>Closed season.

Table 8. Percentage distribution of sage grouse harvest by region and county, 1981-88.

Region and				Year				
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	23.29	18.19	15.56	18.95	14.20	19.61	16.63	16.47
Cache	1.87	3.84	4.56	4.83	1.31*	0.88*	5.02*	
Davis	0.27*	0.50*	2.86*	0.92*	0.18*	0.35*	0.00*	0.00*
Morgan	2.68	1.36	0.44	2.60	0.37*	2.45*	0.96*	
Rich	4.95	4.33	3.48	3.90	2.80	4.90	8.12	12.04
Summit	2.95	2.35	3.13	1.86	0.37*	0.88*	1.16*	1.81*
Weber	0.40	1.86	1,52	3.34	1.12*			
REGIONAL TOTALS	36.41	32.43	31.55	36.43	20.37	31.87	32.88	39.09
Central Region							•	
Juab	2.14*	0.12*	0.35*	0.37*	2.98*	2.10*	0.58*	0.79*
Salt Lake	1.61*	3.09*	0.71*	0.18*	0.18*	5.78*	0.00*	0.11*
Sanpete	0.94*	1.11*	1.42*	1.30*	1.49*	1.58*	3.48*	1.25*
Tooele	2.54	1.49*	0.62*	1.48*	0.56*	3.50*	4.25*	1.81
Utah	4.55*	2.85*	5.72*	5.02*	4.67*	3.85	4.64	2.15
Wasatch	1.74	3.22	1.34	1.86	0.75	2.63*	1.35	1.81*
REGIONAL TOTALS	13.52	11.88	10.17	10.22	10.65	19.44	14.31	7.95
Southern Region	•			-				
Beaver	4.55	2.60	1.87	1.67	1,12	1.58	5.41	1.81
Garfield	14.86	9.28	10.46	9.66	6.54	4.38	4.64	3.86
Iron	1.61	2.85	3.13	1.30	4.48	2.45	3.48	1.59
Kane	0.67	0.00	0.00	0.00	0.18	0.18	0.00	0.11
Millard	0.00	0.62*	2.68*		1.87*		0.38*	0.00*
Piute	0.80	1.73	2.32	4.27	3.36	0.35	1.35	2.04
Sevier	1.34	2.72	2.86	1.48	1.12	1.75	2.32	5.00
Washington	0.00	4.08*	0.00*	0.00*	0.37*		0.00*	0.00*
Wayne	6.29	9.43	9.21	7.44	8.03	6.65	2.32	8.40
REGIONAL TOTALS	30.12	33.42	32.54	26.58	27.10	17.50	19.92	22.84
Northeastern Region								
Daggett	4.28	1.36	2.14	0.55	2.24	0.88	2.32	2.04
Duchesne	4.15	5.69	5.72	2.60	5.23	3.68	4.06	2.61
Uintah	10.31	_13.49	16.99	15.98	19.43	18.21	23.21	17.61
REGIONAL TOTALS	18.74	20.55	24.85	19.15	26.91	22.78	29.59	22.27
Southeastern Region				2,7125		22170		22.27
Carbon	0.40*	0.50*	0.53*	0.92*	1.12	3.68	2.32	2.95
Emery	0.13*	0.00*	0.09*	3.90*	0.93	3.33	0.19	1.13
Grand	0.40	0.12		0.00	0.18	0.35	0.77	0.00
San Juan	0.00	0.37*		0.00*		0.70	0.00	2,27
REGIONAL TOTALS	0.94	0.99	0.89	4.83	2.24	8.06	3.28	6.36
Unknown counties	0.27	0.74	0.00	2.78	12.71	0.35	0.00	1.47
Closed areas	(10.04)	(17.95)	(15.25)	(14,83)	(11.47)	(23.09)	(16.79)	(14.51)
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed season; ( )Percent of total harvest in closed areas.

Table 9. Percentage distribution of sage grouse hunting pressure by region and county, 1981-88.

Region and		<u></u>		<u>Year</u>				
County	1981_	1982	1983	1984	<u> 1985</u>	1986	1987_	1988
<u>Northern Region</u>								
Box Elder	15.74	18.40	14.33	16.89	15.15	17.53	14.11	15.99
Cache	3.99	6.07	7.89	6.38	4.71*	4.12*	11.87*	7.65
Davis	1.03*	1.08*	5.14*	3.72*	0.58*	1.18*	0.34*	1.63
Morgan	3.08	3.62	2.39	5.85	1.16*	4.42*	0.68*	2.83
Rich	7.98	6.75	6.44	5.58	7.28	7.07	8.26	11.26
Summit	6.61	5.77	5.07	5.71	1.46*	1.47*	1.89*	2.40
Weber	2.17	3.72	2.60	3.59	2.04*	4.12*	1.54*	3.09
REGIONAL TOTALS	40.59	45.40	43.87	47.74	32.51	39.91	38.72	44.88
Central Region								
Juab	1.60*	0.59*	0.79*	0.79*	0.58*	0.59*	0.86*	0.68
Salt Lake	1.82*	1.17*	1.15*	0.53*	1.75*	1.91*	0.17*	0.17
Sanpete	0.57*	2.84*	3.55*	1.46*	2.62*	3.53*	4.99*	4.12
Tooele	3.99	1.37*	1.66*	1.99*	1.89*	1.91*	3.44*	5.07
Utah	6.04*	4.50*	4.27*	4.65*	8.01*	7.81	6.71	3.86
Wasatch	2.96	4.70	1.66	4.78	3.06	3.39*	2.06	2.83
REGIONAL TOTALS	16.99	15.17	13.09	14.23	17.93	19.15	18.24	16.76
Southern Region								
Beaver	3.65	1.66	1.59	0.93	2.62	1.47	4.47	1.80
Garfield	9.46	6.56	6.37	5.18	6.56	5.45	2.75	2.49
Iron	1.48	2.45	1.88	0.93	1.89	2.50	2.40	1.97
Kane	0.80	0.00	0.65	0.00	0.29	1.18	0.00	0.08
Millard	0.00	0.49*	1.15*	0.79*	0.73*	0.29*	0.34*	0.00
Piute	0.34	1.47	1.45	2.12	2.77	0.59	2.06	1.63
Sevier	2.51	2.54	3.47	1.59	2.18	3.39	2.06	5.67
Washington	0.00	0.59*	0.14*	0.13*	0.58*	0.00	0.34*	0.42
Wayne	3.76	6.16	5.93	4.25	5.24	4.71	3.44	4.90
REGIONAL TOTALS	22.01	21.92	22.64	15.96	22.88	19.59	17.89	18.99
Northeastern Region	22.01		22.07	17.70	22.00	<u> </u>		10.77
Daggett	4.33	1.08	1.66	2.25	1.89	1.62	2.06	1.28
Duchesne	3.53	5.28	3.54	3.84	6.12	3.09	3.95	1.97
Uintah	3.67	9.20	11.95	11.70	13.99	11.78	16.52	11.95
REGIONAL TOTALS	16.53	15.56	17.15	17.95	22.01	16.59	22.54	15.21
Southeastern Region	10.73	19.30	17.13	1/.93	<u> </u>	10.39	44.34	13.61
Carbon .	1.82*	0.88*	1.59*	1.99*	1.46	2.50	1.89	2 14
<u> </u>				_				2.14
Emery Grand	0.11* 0.91	0.20* 0.39	0.94* 0.00	1.86*	1.16	1.03	0.17	1.11
San Juan	0.00	0.39	0.00	0.00 0.00*	0.14 <u>0.14</u>	0.74	0.34	0.00
REGIONAL TOTALS	2.85	1.66	2.75	3.85		0.44	0.17	0.17
ANGIONAL TOTALS	2.03	1.00	2.13	3.03	2.91	4.71	2.57	3.43
Unknown counties	1.03	0.29	0.50	0.26	1.75	0.15	0.00	0.68
Closed areas	(12.99)	(13.91)	(20.60)	(17.91)	(26.21)	(26.90)	(26.46)	(25.82)
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed season; ( )Percent of total pressure in closed areas.

Table 10. Statewide summary of sage grouse harvest statistics, 1951-88.

	Total*	Total*	Hunter-days	Sage Grouse	Sage Grouse
Year	Hunters	Harvest	Afield	Per Hunter-day	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	
1966	2,612	3,962	4,006	0.83	1.20
1967	5,336	5,089	7,860	0.65	1.52
1968	9,115	11,109	13,601		0.95
1969	12,894	22,282	20,466	0.82	1.22
1970	12,036	15,877	18,506	1.09	1.73
1971	12,893	20,013	1,509	0.86	1.32
1972	13,040			0.93	1.55
1973	10,017	15,983	22,232	0.72	1.23
1974	12,214	13,926	19,049	0.73	1.39
1975	13,996	15,215	23,516	0.65	1.25
1976	15,283	18,916	25,720	0.74	1.35
1977		24,541	28,342	0.87	1.61
1978	14,078	18,615	25,759	0.72	1.32
1979	16,231	25,938	29,861	0.87	1.60
1980	16,927	28,280	30,682	0.92	1.67
1981	15,219	22,770	26,893	0.85	1.50
1982	10,083	15,857	18,617	0.85	1.57
1983	8,997	12,383	15,663	0.79	1.38
1984	9,201	14,949	18,467	0.81	1.63
	8,283	10,921	15,266	0.72	1.32
1985	7,586	11,466	14,702	0.78	1.51
1986 1987	7,233	11,766	13,992	0.84	1.63
1988	7,060	12,673	14,242	0.89	1.80
	8,499	14,692	19,418	0.76	1.73
TOTALS					
(1963-1988)	268,804	381,724	454,413	(21.75)	(37.66)
AVERAGES					
(1963-1987)	10,412	14,681	17,400	0.84	1.44

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

<sup>\*\*</sup>Estimated.

<sup>\*\*\*</sup>Totals and indices based on indiscrete data.

Table 11. Sage grouse field bag check summary, 1988.

			ALL HINTS	,,			훙	COMPLETE HUNTS	S		
Region and	fotal	Total	Total	Total	Birds/	Total Complete	Total	Total	Total	Birds/	Birds/
County	Parties	Hunters	Hours	Birds	100 Hr	Hunts	Hunters	Hours	Birds	100 Hr	Hunter
Northern Region											
Box Elder	147	458	2,933	483	91	147	400	2,933	483	92	1.23
Cache	ł	ı	ł	ļ	1		1	1	1	1	1
Davis	ł	ł	ł	ł	1	1	ł	1	ł	1	1
Moroan	١	1	1	1	1	ı	1	1	ł	ł	ŀ
Rich	"	165	208	98	11	62	133	445	8	<b>8</b> 2	09.0
Summit	ł	ł	1	1	ı	1	i	1	l	1	ł
Weber	ł	ł	1	1	1	-	1	1	1	1	1
REGIONAL TOTALS	218	623	3,441	569	17	209	533	3,378	563	17	1.06
Central Region						•					
Juah	ŀ	1	ŀ	1	1	1	1	1	ł	ł	1
Salt Lake	1	1	1	1	ı	1	ł	i	1	ł	1
Sanoete	i	ł	ł	ł	١	i	ł	1	ł	1	ł
Tooele	42	8	222	4	61	21	47	97	36	<b>4</b>	0.83
Utah	ł	ł	1	ł	1	I	1	1	1	1	l
Wasatch	ţ	ł	ł	ļ	1	1	1	1		1	1
REGIONAL TOTALS	42	66	222	42	16	21	47	97	39	\$	0.83
Southern Region										_	
Beaver	1	1	ŧ	1	1	1	ļ	1	ł	ŀ	ł
Garfield	2	28	9	35	83	4	=	3	20	89	1.82
Iron	2	23	5	13	13	ഗ	2	22	_	7	0.70
Kane	ł	ł	I	ł	ł	1	ł	1	1	1	I
Millard	ł	;	ł	ŧ	ł	1	1	1	1	1	1
Piute	1	;	1	ł	I	1	i	1	1	1	}
Sevier	!	1	1	ł	ł	ł	1	ļ	1	1	}
Washington	ł	ł	1	1	1	ŀ	ł	}	1	ł	1
Wayne	47	130	624	137	22	31	114	564	128	23	1.12
REGIONAL TOTALS	29	178	784	182	23	40	135	645	155	24	1.15
Northeastern Region	티										
Daggett	m	=	11	S	53	2	φ	2	4	8	0.67
Duchesne	i	1	ł	ł	1	1	1	I	l	1	1
Uintah*	i	195	919	125	20	1	117	404	107	56	0.91
REGIONAL TOTALS		206	633	130	21	2	123	414	=	12	0.00
Southeastern Region	티					-					
Carbon	1	1	1	ı	1	ŀ	1	1	1	1	1
Emery	ŀ	ł	1	ł	}	1	1	1	1	1	!
Grand	1	;	ł	1	1	}	1	1	ł	}	}
San Juan	i	1	1	1	1	1	1	1	1	1	1
REGIONAL TOTALS	1	1		1	1	1	!	ł		1	1
STATE TOTALS	330	1,106	5.080	923	82	272	838	4,534	868	19	1.04
*Diamond Mtn.	•										

Table 12. Sage grouse hunter success trend determined by field bag checks, 1983-88.

	150	1083	100	1084	101	1985	19	1986	162	1987	150	1988
7	777	0:242,0	0; mdc /	Binde/	Birde/	Birde/	Ri rde/	Birde/	Rirde/	Rinde/	Birds/	Birds/
Region and	MI HE	Birds/ Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
A TURN		1311011	2	2	2							
Northern Region	,	ļ	:	6	:	6	5	70	9		ž	נהיו
Box Elder	9	1.05	<u> </u>	0.85	2	26.	2 :	s ;	<u>-</u>	. 39	2	17:1
Cache	4	0.13	4	0.18	1	1	2	0.71	ł	}	1	1
Davis	1		1	!	1	i	1	1	1	ł	1	ł
Morgan	1	;	}	1	1	1	ł	ł	ļ	I	1	}
Rich	13	0.53	17	0.56	18	0.68	14	0.57	11	0.70	<b>8</b> 2	0.60
Summit	ł	1	1	ŀ	1	}	1	1	1		ŀ	ţ
Weber	ŀ	ł	1	ł	-	0.44	1	1	1	-	}	1
REGIONAL TOTALS	15	0.94	13	0.78	16	0.95	11	0.93	19	1.20	11	1.06
Central Region												
Juab	ŀ	ŀ	ł	ł		1	i	ł	1	ľ	1	}
Salt Lake	ł	ł	ł	ł	1	1	1	I	ł	{	1	1
Sannete	1	į	;	1	ł	1	1	ł	1	1	1	1
Tonele	ł	ł	ł	ł	;	1	ł	1	ļ	ł	6	0.83
Utah	ł	1	ł	1	11	0.33	ł	1	1	1	1	i
Tana to	ł	ł	ļ	1	ł	ł	1	1	ł	ŧ	}	1
DEGIONAL TOTALS				1	17	0.33	   !	1	1	1	9	0.83
Couthern Region						**						
TO IRBU HIBITOR				ļ	5	0	ļ	ŀ	1	ł	ł	i
Deaver	<b>;</b>	1	1	1	9 L	9.0	•	6	5	-	35	1 02
Garfield	1	}	<b>!</b>	}	52	1.10	<b>20</b>	0.20	2	- 6	8 3	79
Iron	ı	1	}	1	1	ł	1	ł	<b>=</b>	8. 8.	4	0.70
Kane	1	}	1	:	}	ł	1	1	1	ł	ł	1
Millard	ł	1	ŀ	ł	1	1	1	1	1	1	1	ł
Piute	ŀ	!	ł	ļ	ł	ľ	1	1	ł	1	1	ł
Sevier	ł	ł	1	}	1	1	1	ł	1	1	1	1
Washington	ł	ł	ì	ŀ	1	1	ł	1	1	1	1	1
Wayne	25	1,35	11	0.94	137	0:74	22	1.23	- 21	0.95	23	1.12
REGIONAL TOTALS	25	1.35	13	0.94	62	0.78	22	1.20	22	0.97	24	1.15
Northeastern Region												
Daggett	33	1.00	33	0.67	ຊ	1.09	47	1.78	8	1.67	\$	0.67
Duchesne	9	1.25	45	0.83	52	0.33	ጀ	2.00	75	1.50	ľ	1
Uintah	34	0.89	25	0.80	4	1.10	49	1.17	36	1.05	56	0.91
REGIONAL TOTALS	35	0.93	26	0.79	36	1.06	52	1.33	40	1.12	27	0.00
Southeastern Region												
Carbon	}	!	ł	}	ł	I	200	1.00	8	9.	}	}
Emery	1	1	1	ŀ	133	1.00	1	1	1	}	1	1
Grand	;	1	ł	1	100	2.00	1	1	22	3.00	}	1
San Juan	-	ł	1	ŀ	1	1	1	1	1	1	1	
REGIONAL TOTALS	ł	!	}	ł	114	1.33	200	1.00	20	1.73	1	1
STATE TOTALS	18	0.99	14	0.81	20	0.93	20	1.02	21	1.15	19	1.04

Table 13. Sex and age composition of harvested sage grouse, 1988.

Region and	Sample		Adu	lts		You	ing	Young/	Young/
County	Size	M	F	Tota1	M	F	Total	100 Adults	100 Hens
Northern Region									
Box Elder	232	39	84	123	45	64	109	89	130
Cache									
Davis	****	~~							
Morgan ·									
Rich	59	10	22	32	9	18	27	84	123
Summit									
Weber									
REGIONAL TOTALS	291	49	106	155	54	82	136	88	128
Central Region									
Juab					_				
Salt Lake									
Sanpete									
Tooele	37	9	12	21	7	9	16	76	133
Utah									
Wasatch									
REGIONAL TOTALS	37	9	12	21	7	9	16	76	133
Southern Region		<del></del>							
Beaver									
Garfield									
Iron					~~				
Kane								48-8**	
Millard									
Piute									
Sevier					~~~				
Washington									
Wayne	335	34	83	117	117	101	218	186	263
REGIONAL TOTALS	335	34	83	117	117	101	218	186	263
Northeastern Region			<u> </u>	· · · · · · ·		<u> </u>		190	
Daggett	=								
Duchesne			****						
Uintah*	146	31	45	76	30	40	70	92	156
REGIONAL TOTALS	146	31	45	7.6	30	40	70	92	156
Southeastern Region		<u>-/-+-</u>		7. <u>U</u>	<u></u>	70	<u> </u>		170
Carbon	133	14	57	71	25	37	62	87	109
Emery						<i></i>		07 <del></del>	709
Grand									
San Juan						_		<del></del>	
REGIONAL TOTALS	133	14	57	71	25	_ <del></del>	62	87	109
STATE TOTALS	942	137	303	440_	233		502	114	166
	<u> </u>		<u> </u>	770	<u> </u>	<u> </u>	794	<u> </u>	100

Table 14. Sex and age composition of harvested sage grouse from 1985-88.

			1985				1986	99				1987					1988			Averages 1973-87	3-87
Region and	Sex	Sex Ratio %	- 1	Young/		Sex	Ratio %	Young/	/51	٠.,	Sex Ratio	tio %	Young/	_	\\	Sex Ratio	% 0	Young/	_	Sex Ratio %	Young/
County		E.		100H 100A	اء	Σ	<b>L</b>	100H 100A	100A	c	¥	<b>L</b>	100H 100A	90 A	ے	Σ	L	100H 100A	0A	n M F 1	100H 100A
Northern Region																					
Box Elder 296	5	57	258	3 174	4 322	4	26	395	232	336	44	26	265	155	232	39	64	130	83		
Cache	i	1	i	i	ì	!	ł	1	<u>2</u>	ł	1	ł	1	i	ļ	1	1	1	}		
Davis	i	1	i	i	i	1	1		1	ł	1	!	•	1	1	1	!	1	1		
Morgan	i	1	i	i	1	1	1	ł	}	ł	ł	;	l	1	l	1	1	1	1		
Rich 70	9	43	307	7 192	2 54	44	20	840	320	11	43	53	233	175	23	35	99	123	84		
Summit	i	1	i	i	i	1	1	1	1	ł	l	<b>!</b>	1	1	1	1	ı	1	1		
Weber	ij	 	1	i	- 1		1		1	1	1	1	1	ı			1	1	П		
REGIONAL TOTALS 366	6 46	54	266	5 177	7 376	6 41	29	431	245	413	45	55	258	158	291	35	65	128	88	481 43 57	220 146
Central Region																					
Juah	i	{	i	ì	1	1	1	1	!	!	}	}	1	1	1	1	}	1	1		
Salt Lake	i	;	i	•	i	!	1	1	ł	ł	1	1	1	1	1	1	ł	1	!		
Sanpete	i	1	i	i	i	1	1	1	ł	ŀ	1	1	}	1		1	1	1	1		
Tooele	i	1	i	i	i	}	1	1	ł	!	1	1	1	1	37	43	23	133	9/		
Utah	i	1	i	i	1	1	1	1	!	!	ł	1	1	ŀ	ļ	1	ŀ	1	}		
Wasatch	i	1			ij		1	1	1	1	1	1	1	1	1			1	11		
REGIONAL TOTALS	i ı	-	i	İ	-	1	1	}	ł	1	1	1	-	1	37	43	57	133	76	107 44 56	204 128
Southern Region																					
Beaver	i	!	i	i	;	1		}	1	ł	!	l	!	ı	1	1	1	}	1		
Garfield	i		i	i	i	!	}	1	172	}	1	!	1	!	ł	}	!	1	1		
Iron	i	1	i	1	ì	!	ł	1	75	}	1	1	1	ŀ	1	1	!	1	1		
Kane	i	1	i	1	i	1	1	1	ł	ł	1	1	ł	1	1	1	i	1	1		
Millard	i 1	;	i	1	i	1	ł	1	ł	ł	1		l	1	1	1	1	1	1		
Piute	i	;	i	i	i	1	}	1	1	1	ł	1	ŀ	1	1	1			1		
Sevier	ì	1	ì	i	i	!	1	1	}	1	1	1	ł	1	1		1	1	{		
Washington	i	¦	ì	i	i	1	i	1		1	1	1	1	1	ı	1	į	1			
Wayne 236	9 46	5 54	327	7 211	1 265	48	52	378	268	230	43	57	278	233	335	<del>\$</del>	55	263	186		
REGIONAL TOTALS 236	9	54	327	7 211	1 265	48	25	378	568	230	43	57	278	233	335	45	55	263	186	383 40 60	256 179
Northeastern Re																					
Daggett	j i	¦	ì	j I	}	!	l	1	ŀ	ł	ł	1	1	1	1	1	ŀ	1	1		
Duchesne	i		i	1	1	1	1	}	}	l	}	}	1	ı	1		1		1		
Uintah 195	5 45	55	777	7 200	0 65	47	23	323	33	8	8	25	191	531					173		
REGIONAL TOTALS 195	5 45	5 55	277	7 200	0 65	47	53	323	183	82	84	25	767	53	7	6	51	321	173	258 43 57	305 200
Southeastern Re																					
Carbon	i	1	i	i	}	1	1	1	1	93	5	æ	84	75	133	ි න	7	901	87		
Emery	í	1	i	ì	•	1			!	1	1	1	1	}	}	1	1	1	,		
Grand	i I	1	i	į	i		1	}	1	15	33	29	125	7	1	· }	1	1	1		
San Juan			ì		11		1	1	1		1	1	1	ł	1	H	!	1	11		
REGIONAL TOTALS	j	1		Ì		1	١	1		75	21	79	83	74	133	53	11	109	87	38 44 56	646 146
STATE TOTALS 797	7 46	5 54	285	5 192	2 706	45	55	398	246	900	42	58	256	181	942	31	69	166	114	175 42 58	236 154
n = wing sample size	le si	ze.																			

# **FOREST GROUSE**

# SUMMARY

Judging from harvest statistics for the fall of 1987, the 1988 breeding populations of ruffed grouse were lower than average and blue grouse were above average for the second year in a row. However, production of ruffed grouse in 1988 dropped 48 percent.

Production of blue grouse decreased from 1987 and was below the 10-year average. However, blue grouse observed per 100 hours of effort was 66 percent above average. A total of 86 forest grouse broods were observed during 1988 compared with 134 in 1987, 53 in 1986, and 78 in 1985.

Harvest statistics indicated a higher density of forest grouse. Total harvest increased from 45,326 in 1987 to 53,562 in 1988, an 18 percent increase. Total hunters increased 14 percent in 1988 compared to 1987, and days afield increased from 41,428 to 51,726.

Field bag check data corroborated increased forest grouse numbers from the questionnaire. Blue grouse wing age sample size were insufficient to draw any conclusions.

These data indicate the potential for increase inherent in blue grouse population irrespective of hunting. Forest grouse season lengths and bag limits have remained essentially the same for 20 years and populations fluctuate with breeding conditions.





#### **Brood Counts**

# Ruffed Grouse

Results of the annual random brood survey for 1988 are shown in Table 1 of this section. Long-term trends of young-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 1988 compared to 1987 and the previous 10-year average follow:

		Percent	change from
	<u>1988</u>	<u>1987</u>	Average
Total ruffed grouse observed	104	-17	<del>-</del> 25
Young per 100 adults	160	-48	-53
Mean brood size	3.71	-1	-19
Ruffed grouse observed per 100 hours	46	+2	-31
Total hours effort	226	-20	-52

Harvest statistics for 1987 indicated an above average breeding population for 1988.

Effort on brood surveys decreased by 20 percent and was 52 percent below average.

Grouse observed per 100 hours was 31 percent below average, while mean brood size was 19 percent below average indicating poor production.

# Blue Grouse

Results of the annual random brood survey for 1988 are shown in Table 5 of this section. Long-term trends of young-adult ratios, mean brood size and blue grouse observed per 100 hours are found in Tables 6-8. Survey results for 1988 compared to 1987 and the 10-year average follow:

		<u>Percent c</u>	hange from
	<u>1988</u>	<u> 1987</u>	<u>Average</u>
Total blue grouse observed	455	-34	-13
Young per 100 adults	207	-23	-15
Mean brood size	3.22	-20	-17
Blue grouse observed per 100 hours	166	-16	+66
Total hours effort (forest grouse)	274	-22	-53

Harvest statistics for 1987 indicated the blue grouse breeding population for 1988 was again above average.

The 1988 summer surveys on blue grouse indicated that production decreased 23 percent from 1987 and was below average.

This may have resulted from April precipitation 0.77 inches above normal statewide and above average temperatures and below average precipitation May through August 1988.

Total observations decreased 34 percent, the result of decreased effort. The number of grouse observed per 100 hours of effort decreased from 1987 but was 66 percent above average. This should have indicated increased percentage adults in the harvest.

### Harvest

## Hunter Questionnaire

Results of the 1988 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 Figure 1 and 2. Forest grouse season length, bag limits and harvest statistics, 1963-1988 are listed in Table 17. Harvest statistics for 1988 compared to 1987 and the 25-year (1963-87) average follow:

	<u>1988</u>	<u>Percent</u> 1987	change from Average
Forest grouse hunters	16,947	+14	+16
Forest grouse harvested	53,562	+18	+56
Hunter-days afield	51,726	+25	+48
Forest grouse per hunter-day	1.04	-5	+5
Forest grouse per hunter	3.16	+3	+34
Percent ruffed grouse	35.7	+2	<b>-7</b>
Percent blue grouse	58.9	-5	+7
Percent unidentified	5.4	+69	-16

Results from the harvest questionnaire confirmed rapidly increasing forest grouse populations again in 1988. This increase was in both blue and ruffed grouse. Ruffed grouse populations were 44 percent above average. Total harvest increased 18 percent from 1987 and was 56 percent above average. Hunter success (grouse per hunter-day) was 5 percent above average, and the number of grouse harvested per hunter was 34 percent above average. Hunter pressure increased from 1987, and was 48 percent above the 25-year average.

Figure 1. Statewide trends of forest grouse harvest statistics.

Statewide trends of forest grouse hunter success rates, 1968-88. Figure 2.

## Field Bag Checks

A summary of field bag check data for 1988 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 1988 survey compared to 1987 and the 10-year (1978-87) average follow:

		<u>Percent</u>	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total hunters checked	748	-39	-32
Total hours hunted	2,711	-55	` ~35
Forest grouse per hunter (complete hunts)	0.94	+25	+71
Forest grouse bagged per 100 hours	25	+127	+79
Average hours per hunter-day (complete hunts)	3.76	-10	<b>-5</b>
Hours hunted per grouse bagged (complete hunts)	4.0	-27	-46

Table 1. Ruffed grouse summer inventory, 1988.

	0.	Distinct	ct		Mixe	Mixed Yng										
Region and	٦	Broods	S	Mean	ø Ø	& Adults	Adults	Total	Total	Young/	Veh.	Ĭ	Hours of Effort	f Effc	ort	Birds/
County	**	- 1	Ad Yng	Brood	Ad	Yng	w/o Yng	Adults	Yng	100 Ad	Miles	Veh.	Horse Walk Total	Walk	Total	100 Fr
Northern Region															5	
Box Elder	2	7	9	3.00	0	0	2	15	9	S	9	4	0	7	18	100
Cache	7	2	æ	4.00	0	0	_	æ	60	267	745	49	0	<b>∞</b>	99	17
Davis	m	ო	15	4.00	7	7	6	7	19	136	188	82	0	Ξ	, 62	114
Morgan	ł	1	1	ł	1	1	}	1	ŀ	1	1	1	I	!	1	1
Rich	_	-	ო	3.00	7	Ŋ	0	က	æ	267	82	12	2	0	22	20
Summit	}	ł	ł	1	.	1	ł	1	1	1	ł	1	1	1	ł	ŀ
Weber	က	6	=	3.67	0	0	2	2	11	220	40	m	9	0	Ó	178
REGIONAL TOTALS	=	=	40	3.64	4	12	22	37	52	141	1.118	86	25	8	144	63
Central Region																\$
Juab	1	ł	1	1	1	1	1	ł		}	1	I	!	1	ł	ł
Salt Lake	1	ł	ł	1	1		ł	}	l	ł	1		1	ł	}	;
Sanpete	I	ł	ł	}	1	1	ł	1	}	ł	1	1	!	1	1	ļ
Tooele	•	0	0	}	C	_	<b>-</b>	<b>c</b>	=	<	ጸ	~	<	<	٠,	
+ah	. –		~	9	•	, c	· c	,	۰,	9 6	? ?	י נ	•		, ,	6
Wasatch	-	•	۱ ،	3	۱ -	<b>&gt;</b>	<b>&gt;</b>	-	ן י	3 1	2	n	>	>	'n	33
			,	1					,				<u>.</u>			1
REGIONAL IDIALS	_	-	7	3.00	1			-	7	300	2		0	9	6	133
Southern Region																
Beaver	ł	ľ	1	!	1	}	1	ł	1	1	I	1	1	Į,	1	1
Garfield	1	1	1	1	ł	1	1	1	1	1	!	!	1	1	1	1
Iron	1		ŀ		ł	1	I	1	}	ļ	!	1	1	1	ł	1
Kane	ł	1	1	1		1	ł		1	1	l	}	ł	1	ı	ŀ
Millard		ł	}	1	1	1	ł	1	1	}	ł	1	ł	1	ŀ	ŀ
Piute	1	1	1	1		1	ł	1	ł	1	ł	ł	1	1	1	
Sevier	7	7	σ	4.50	0	0	0	2	6	450	1	1	∞	ł	∞	138
Washington	1	ł	1	ļ	1	1	ł	1	1	1	ł	!	1	1	ł	ł
Wayne	1	1			1		ŀ	i	1	ı	1	1	1	   	1	1
REGIONAL TOTALS	7	2	6	4.50	0	0	0	2	6	450	١	1	8	1	80	138
Northeastern Region	티															
Daggett	0	0	0	1	0	0	0	0	0	ł	227	20	0	0	20	1
Duchesne	0	0	0	1	0	0	0	!	0	1	250	20	0	4	24	}
Uintah	0	9	0	i	0	0	0	0	0	1	81	7	38	7	27	;
REGIONAL TOTALS	0	0	0	I	0	0	0	0	0	}	558	47	82	ی	1	1
Southeastern Region	딍															
Carbon	1	ł	ł	ł	1	1	ł	1	1	1	1	l		1	1	<b>¦</b>
Emery	1	ł	1	!		ł	1	!	1	ļ	ł	1	1	ł	}	
Grand	ł	1	ł	1	1	<b>!</b>	ł	1	1	1	l	1	1	}	ł	ł
San Juan	ł			-	1	!	1	1	1	I,	I	-	ļ	ŀ	}	1
REGIONAL TOTALS	I	ŀ	1	1	1	1	1,	+	ł			1	1			
STATE TOTALS	14	14	52	3.71	4	12	22	40	64	160	1.706	136	2	30	226	46
					1				l			!	;	,	1	ř

Table 2. Irend of ruffed grouse young per 100 adults, 1978-88.

Doc on Doc					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region						;			ć		ŝ	
Box Elder	ł	ł	1	I	l	300	ŀ	ł	433	25	ਤ }	
Cache	262	450	138	ł	1	902	1	320	5	300	267	
Davis	1	1,100	I	ł	ŀ	1	ł	1	1	<b>¦</b>	136	
Morgan	100	400	909	1	1	200	ł	0	1	1	1	
Rich	1	1	ł	ł	ł	1	1	299	<b>500</b>	}	267	
Summit	400	200	200	200	1	1	ŀ	200	400	200	1	
T actor	ł	200	20	267		1	-	150	1	380	220	
REGIONAL TOTALS	260	460	217	250	1	286	ţ	308	300	337	141	302
Central Region												
Juab	1	I	1	1	1		I	ŀ	1	1	1	
Salt Lake	ł	ł	200	35	ł	ŀ	ł	}	150	0	ŀ	
Sanoete	462	206	373	390	476	475	1	700	1	1	ł	
Toole	ł	1	1	1	300	1	ł	1	1	1	1	
Utah	300	280	217	300	275	1	I	ł	460	320	300	
Wasatch	1	300	-	1	1	300	1	1	1	1	1	
REGIONAL TOTALS	424	416	295	282	414	392	1	700	322	320	300	396
Southern Region												
Beaver	1	1	ŀ	1	1	1	ł	1	1		1	
Garfield	1	1	ŀ	1	ł	ł	ŀ	ł	1	1	1	
Iron	1	1	ł	ł	l	1	1	1	1	1	}	
Kane	ŀ	1	ł	!	1	1	l	1	ł	ł	ł	
Millard	1	1	1	1	1	1	1	1	1	1	1	
Piute	1	ŀ	1	}	}	ł	ł	1	i	!	1	
Sevier	300	400	900	200	<b>¦</b>	1	1	1	1	1	420	
Washington	1	1	1	1	1	1	1	1	1	}	1	
Wayne	1	1	1	-	1	}	1	1	1	1	l	
REGIONAL TOTALS	300	400	900	200		1	1	1	1		420	450
Northeastern Region												
Daggett	1	240	<b>!</b>	475	ł	ł	1	1	1	1	ł	
Ouchesne	300	450	1	20 20	1	1	1	!	}	}	1	
Uintah	900	1	300	1	1	;	1	1		400	1	i 
REGIONAL TOTALS	343	300	300	520	1	1	1	1		300	1	353
Southeastern Region												
Carbon	ļ	1	1	1	1	1	!	!	}	1 5	ł	
Emery	1	}	1	1	1	!	1	<b>!</b>	1	300	1	
Grand	;	1	1	1	ł	ł	ł	1	1	î	ł	
San Juan	1	1	11	1	1	1	1	1	1		1	
REGIONAL TOTALS	1	1	1	1	1	1	1	1	1	99	1	300
STATE TOTALS	345	398	294	311	404	353	1	336	312	306	160	340

Lable 3. Irend of ruffed grouse mean brood size, 1978–88.

County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	I	!	1	1	l	3.00	1	1	2.00	3.00	3.00	
Cache ,	4.33	5.14	3.67	ł	1	7.00	1	3.50	1.00	3.14	4.00	
Davis	ŀ	9.00	}	1	ł	1	ł	ł	ł	1	4.00	
Morgan	1.00	4.89	0.09	ł	1	2.00	}	ł	1	ŀ	:	
Rich	ł	ł	ł	l	ŀ	1	1	6.67	3.00		3.00	
Summit	4.00	2.00	4.00	2.00	ł	!	ł	33	4.00	5	3	
Weber	1	5	20.5	4 00	l	ł	ł	8 6	}	25. 4	7	
REGIONAL TOTALS	3.88	5.20	4.33	3.33		2.00		4 44	2,60	3 93	3.64	4 00
Central Region												
Juab	}	1	1	1	ł	ł	1	1	1	¦	1	
Salt Lake	;	İ	2.00	2.20	ł	ł	l	ł	1		ł	
Sanpete	5.11	5.79	5.14	5.47	5.47	4.75	1	7.00	ł	11	ł	
Tooele	1	1	ł	ł	4.00	1	1	1	ŀ	1	ł	
Utah	4.00	4.67	3.25	3.00	ł	ŀ	ł	ł	4.60	3.20	3.00	
Wasatch	1	3.00	ł	1	1	9.00	ı		1	1	ļ	
REGIONAL TOTALS	4.83	5.20	4.25	4.57	5.13	5.22	1	7.00	4.60	3.20	3.00	4.89
Southern Region												
Beaver	!	ł	1	1	1	1	!	ł	1	ł	1	
Garfield	ł	ł	1	1	1	1	I	1	}	1	ł	
Iron	ł	l	1		}	1	}	1	;	1	ļ	
Kane	1	1	}	1	}	1	}	1		1	ŀ	
Millard	1	1	1	ł	ł		!	ł	!	1	ł	
Piute	ł	1	1	1	ł	}	1	ł	}	1	ł	
Sevier	3.00	4.80	9.00	5.00	}	1	1	ł	ł	ł	4.50	
Washington	1	1	}	1	ľ	ł	1	!	1	1	1	
Wayne	1	1	1	ł	1	ł	1	ŀ	1	!	1	i
REGIONAL TOTALS	3.00	4.80	9.00	5.00	1	1.	ŀ	-	1	ſ	4.50	4.70
Northeastern Region												
Daggett	}	4.00	ŀ	4.75	ł	1	I	ł	ł	.1	!	
Duchesne	4.50	4.50	1	7.00	1	1	1	ł	1	ł	ł	
Uintah	6.00	1	6.00	1	1	}	ł	ł	1	4.00	1	
REGIONAL TOTALS	4.80	4.20	6.00	5.20	ł	    -	1	1	1	4.00		4.84
Southeastern Region						i i						
Carbon	}	1	!	1	1	1	1	1	}	1	ł	
Emery	Ì	1	ł	ł	1	1	}	1	1	3.00	1	
Grand	1	1	}	l	1	1	ł	1	ł	ł	1	
San Juan	ł	1	1	ł	1	1	1	ļ	ł	!	1	
REGIONAL TOTALS	1	ł	!	}	1	1	-	1	1	3.00	1	3.00

Table 4. Trend of ruffed grouse observed per 100 hours, 1978-88.

203 203 203 203 203 203 203 203 203 203	25 20 20 21 17 17 190 150	1861	1982	1983	1984	1985	1986	1987	1988	1978-87
25   61   61   6   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   8   1   1	25 20 12 17 19		۱ ۳	59			;	33	5	
25   8   1   9   9   1   9   9   1   9   9   1   1	28 20 17 17 19 180	1 1 1	"	82		ļ		33	00.	
203 2 2 30 2 30 2 30 30 30 30 30 30 30 30 30 30 30 30 30	28 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1	1 1	~				8		₹	
7	20 2 12 14 150 150 150 150 150 150 150 150 150 150	ł	,	ڡ	;	17	70	58	11	
203   203   203   203   204   2	20 21 17 19 150		ł	1	ł	1	ł	I	114	
203   30   11   1   1   1   1   1   1   1   1	21 21 19 150	1	ł	21	1	7	ł	1	1	
203   18   19   19   19   19   19   19   19	19 150	I	1	ł	1	1,150	53	ł	20	
30 2 30 30 2 30 30 30 30 30 30 30 30 30 30 30 30 30	10 10 10 10 10 10	ł	ł	1	1	25	36	006	1	
203 2 30 30 30 30 30 30 30 30 30 30 30 30 30	91  021	31	ł	1	1	12	ł	267	178	
203 30 1 30 1 5 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6	1 85	10	_	12	1	26	30	56	62	23
503   30   203   1   1   204   1   1   205	। छ						i			
203   30   30   30   30   30   30   30	150	ŀ	ł	1	i	1	ł	ł	ļ	
203		20	}	ł	1	1	167	ł	1	
1 8 1 8 1 1 1 1 1 2 1 0	200	515	293	172	1	160	1	ł.	ł	
08   66	1	ł	880	1	}	ł	ł	1	1	
1 6 1 1 1 1 1 2 1 0	37	7	38	ო	1	1	400	ន	133	
86	48	6	ł	1	98	1	ı	25	 	
~   0	47	86	144	63	1	14	88	30	133	73
0	ł	ŀ	ł	ŀ	!	ŀ	I	ł	1	
2   0	1	1	ì	ŀ	1	ł	ŀ	1	ł	
0   0	1	1	1	1	ŀ	1	ł	ł	1	
~   0	1	ŀ	1	1	I	ł	1	}	ł	
~   0	ŀ	1	1	}	1	ł	}	1	ŀ	
0   5	ł	ŀ	ı	1	1	1	I	ł	1	
0	m	7	1	1	1	ł	ł	1	138	
0	ŀ	ŀ	ŀ	ı	1	i	1	1	ł	
		1	1	1		i	1	1	ł	
REGIONAL TOTALS 2 15	60	2	:	ı	1	ŀ	1	ł	138	9
Northeastern Region										
Daggett 85	1	164	1	1	}	1	1	}	1	
Duchesne 46 48	ł	15	}	ł	1	ł	1	4	1	
Uintah 0 11	i	320	1	!	1	1	ł	68	}	
REGIONAL TOTALS 21 26	350	56	ı	ı	1	ł		28	ł	8
Southeastern Region							-			
Carbon 9	ł	i	!	1	1	ł	ı	ł	1	
Emery 33	}	ŀ	ł	1	ŀ	1	0	400	1	
Grand	ł	1	1	ł	ł	1	0	ŀ	ł	
!	1	1	ı	1	!	1	ł	;	1	
REGIONAL TOTALS — 12	-	ł	I		H	1	ł	400	1	206
STATE TOTALS 29 37	20	27	99	19	i	22	47	45	46	35

Table 5. Blue grouse summer inventory summary, 1988.

	ä	Distinct	ب		Mixed Yng	Yng										
Region and	-	Broods		Mean	& Ac	& Adults	Adults	Total	Total	Young/	Veh.	윈	urs of	Hours of Effort	Ţ	Birds/
County	*	A	Ϋ́	Brood	Ad	Yng	w/o Yng	Adults	Yng	100 Ad	Miles	Veh.	Horse	Veh. Horse Walk Total	Total	100 Hr
Northern Region																
Box Elder	0	0	0	1	0	0	0	0	0	ł	9	4	0	7	<b>B</b>	ļ
Cache	œ	80	53	3.63	0	0	0	æ	53	363	745	49	6	₩	99	20
Davis	2	2	<b>\$</b>	4.00	9	22	6	52	62	248	188	18	0	=	59	300
Morgan	ł	1	ł	1	1	1	1	1	1	1	1	1	1	1	1	1
Rich	0	0	0	1	0	0	0	0	0	ł	82	12	2	0	22	0
Summit	1	1	ł	ł	}	1	1	1	ł	1	1	ł	!	1	}	1
Weber	-	-	4	4.00	0	0	0	-	4	400	9	m	9	0	6	56
REGIONAL TOTALS	19	19	73	3.84	9	22	6	34	95	279	1,118	86	25	33	144	98
Central Region																
Juab	ł	ł	1	1	1	1	1	}	1	1	1	1	ł	}	1	}
Salt Lake	1	ł	1	ł	ł	1	1	1	{	1	1	}	}		}	1
Sanpete	;	ł	1	1	}	1	1	ł	1	1	ł	1	1	1	1	!
Tooele	7	7	15	9.00	7	14	0	4	56	650	25	٣	0	0	က	1,000
Utah	-	-	3	5.00	0	•	7	6	æ	267	30	က	0	0	æ	367
Wasatch	1	- 1	:	1	1	1	-		-	-	1	-	-	-	-	!
REGIONAL TOTALS	3	3	17	5.67	2	14	2	7	34	486	55	9	0	0	9	683
Southern Region											ı		l I			
Beaver	က	m	12	4.00	0	0	æ	Ξ	12	109	4	4	0	2	7	164
Garfield	}	1	1	ł	ļ	1	ł	1	1	1	1	}	1	1	1	1
Iron	ł	ł	1	1	}	1	1	1	1	ł	1	1	l	1	1	ł
Kane	_	-	4	4.00	7	9	-	4	2	250	30	6	0	7	Ξ	127
Millard	4	4	9	1.50	0	0	9	유	9	9	70	13	m	0	91	<b>00</b> 1
Piute	1	1	1	1	ł	1	1	ł	1	ł	}	ł	1		1	1
Sevier	12	15	28	2.33	0	0	19	33	28	6	0	0	80	0	æ	738
Washington	1	}	ł	1	ł	1	1	i	ł	ł	!	1	1	1	1	1
Wayne	4	4	15	3.75	9	0	0	4	15	375	20	2	2	9	4	475
REGIONAL TOTALS	24	24	65	2.71	2	9	34	09	11	118	160	28	33	12	53	247
Mortheastern Region	ସ															
Daggett	Ŋ	S	9	3.20	4	19	7	=	32	318	227	70	0	0	70	230
Duchesne	4	4	2	2.50	4	6	2	2	19	190	250	20	0	4	24	121
Uintah	7	2	~	3.50	0	0	-	m	_	233	8	-	9	7	27	37
REGIONAL TOTALS	=	=	33	3.00	80	78	S	24	19	254	558	47	18	9	71	120
Southeastern Region	딞															
Carbon	ł	l		}	1	1	;	!	ł	1	1	1			1	1
Emery	-	-	4	4.00	0	0	ო	4	4	100	1	1	1	1	}	!
Grand	6	6	52	2.78	0	0	7	=	25	227	1	l	1	1	1	1
San Juan	2	S	15	3.00	7	2	-	8	7.	213	1	1	1		;	
REGIONAL TOTALS	12	12	4	2.93	7	2	9	23	46	200			}	1	1	1
STATE TOTALS	72	72	232	3.22	20	72	26	148	307	207	1.891	167	26	51	274	166
"Data from Southeast	theas	ern	Regi (	Region and S	Southe	Southern Region	noig		I							

Table 6. Irend of blue grouse young per 100 adults, 1978-88.

Kegion and					Year			i				Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	400	380	009	360	I	125	320	}	901	ŀ	I	
Cache	322	167	83	254	1	467	ł	167	1	300	363	
Davis	200	001	900	1	ł	300	220	183	150	222	248	
Morgan	230	0	233	200	ł	1	300	900	1	433	1	
Rich	1	l	300	}	1	1	ł	ł	350	l	ł	
Summit	260	325	400	389	ł	1	200	450	ŀ	200	l	
Weber	425	280	425	221	400	1	1	400	ł	380	400	
REGIONAL TOTALS	357	205	217	172	400	220	300	269	222	300	279	276
Central Region												
Juab	200	200	124	300	. !	400	400	0	180	1	1	
Salt Lake	160	230	320	200	38	ł	1	ł	1	1	1	
Sanpete	8	275	ł	ł	471	1	1	l	ł	900	1	
Tooele	108	225	14	138	ł	138	ł	168	167	218	650	
Utah	566	169	279	88	001	200	1	175	l	256	267	
Wasatch	800	214	ł	ł	200	250	}	Į	1	1	1	
REGIONAL TOTALS	156	200	167	153	317	156	400	157	169	273	486	200
Southern Region												
Beaver	ł	200	1	200	214	700	250	200	267	133	109	
Garfield	380	375	1	I	340	300	241	200	245	160	ļ	
Iron	200	233	340	l	ł	ł	1	1	I	300	1	
Kane	400	ł	ŀ	1	ŀ	267	ı	255	200	475	220	
Millard	267	475	1	ł	235	l	100	300	200	425	8	
Piute	1	ł	ŀ	387	350	l	200	300	300	1	ł	
Sevier	214	9	179	155	238	901	8	417	I	150	8	
Washington	009	400	;	200	1	367	ł	1	233	533	ł	
Wayne	1	ł	1	1	1	400	!	900	1	350	375	
REGIONAL TOTALS	288	158	193	253	245	237	164	282	279	230	118	233
Northeastern Region												
Daggett	343	154	336	442	469	200	I	ł	282	331	318	
Duchesne	267	220	409	257	382	340	I	1	228	129	96(	
Uintah	200	460	354	380	238	311	ı	1	140	200	233	
REGIONAL TOTALS	486	202	366	371	381	402	i	ı	235	305	254	344
Southeastern Region												
Carbon	225	90	320	200	-	700	300	120	200	1	1	
Emery	1	ł	1	1	1	1	1	}	}	400	100	
Grand	ł	1	l	901	1	1	52	200	260	1	227	
San Juan	380	250	200	300	1	100	175	300	ł	300	213	
REGIONAL TOTALS	255	140	275	208	-	200	140	506	300	140	200	207
CTATE TOTAL C	978	188	219	27.4	207	272	001	220	225	269	507	777

Table 7. Trend of blue grouse mean brood size, 1978-88.

County         1978         1979           Northern Region         4.00         3.80           Box Elder         4.00         3.80           Cache         4.46         2.50           Davis         5.00         3.50           Morgan         3.83            Rich             Summit         5.60         4.33           Weber         4.25         3.50           REGIONAL TOTALS         4.00         2.00           Salt Lake         2.67         3.29           Sanpete         4.00         2.05           Sant Lake         2.67         3.29           Sant Lake         2.07         3.13           Wasatch         4.00         2.00           REGIONAL TOTALS         3.61         3.30           Southern Region	1980 6.00 3.75 6.00 3.00 3.00 4.00 4.25 3.50 3.50 3.37 4.25	3.60 3.67 3.67 3.67 3.89 3.20 7.00 4.00	1982 1 1982 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.00 4.33 3.00 4.20 4.00 4.00 5.00 4.00 7.00 3.00	7.00 7.00 3.00 3.00 5.00 5.00 4.00 4.00 4.00 3.33 3.22	3.33 3.67 9.00 9.00 0.00 0.00 1.33 3.50 2.00	3.00 3.00 3.20 3.20 3.20 3.20 3.20 3.20	3.67 3.67 2.83 4.33 4.33 3.88 3.88 3.88 3.43 3.43 3.45 3.45	3.63 4.00 4.00 3.84 3.84 1.00 5.00 5.00	1978–87 1978–87 4.06
4.96 4.46 5.00 3.83 3.83 4.25 4.25 4.00 4.00 4.00 4.75 6.00		3.60 3.67 2.00 3.89 3.89 4.00 7.00 4.00	1.00 3.00 3.00 2.60	5.00 4.33 3.00 1.00 4.00 4.00 4.00 7.00 3.00	7.00 7.00 3.00 5.00 6.00 4.00 1.00	3.33 3.67 9.00 4.50 5.33 4.73 4.73 3.38 3.50 2.00	3.00 3.00 3.25 3.25 3.20 3.20 3.20 3.20 3.20 3.20 3.20 3.20	3.67 2.83 2.83 4.33 3.62 3.43 3.43 3.45 3.45 3.45	3.63	3.75
4.46 5.00 3.83 3.83 3.83 3.83 4.25 4.25 4.00 4.00 4.00 5.67 6.00		3.60 3.67 2.00 3.89 3.57 4.00 7.00 4.00	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	5.00 4.33 3.00 1.00 4.20 4.00 4.00 4.00 7.00 3.00	5.50 3.00 3.00 5.00 6.00 7.00 7.00 7.00 7.00 7.00 7.00 7	3.33 3.67 9.00 9.00 9.00 0.00 0.00 3.50 3.50	3.00 3.00 3.20 3.20 3.20 3.20 3.20 3.20	3.67 2.83 2.83 4.33 3.67 5.00 6.00 6.00 3.43 3.43 3.43 3.43 4.35 6.00	3.63 4.00 4.00 3.84 1.00 6.00 5.00	3.75
3.83 3.83 3.83 3.83 3.83 3.83 3.83 3.83		3.67 2.00 3.89 3.57 3.65 4.00 7.00 4.00	1.00	4.33 3.00 1 4.20 1 4.00 1 4.00 1 7.00 3.00	5.50 3.00 3.00 5.00 4.00 4.00 1.00 3.33 3.22	3.33 3.67 9.00 9.00 0.00 0.00 3.38 3.43 3.43 3.50	3.20 3.20 3.20 3.20 3.20 3.20 3.20 3.20	3.67 2.83 4.33 4.75 1.88 3.43 3.43 3.43 3.45 1.60 1.60 1.60 1.60 1.60 1.60 1.60 1.60	3.63 4.00 4.00 3.84 3.84 5.00 5.00	3.75
5.00 3.83 3.83 5.60 4.00 4.00 4.00 5.67 4.00 6.00		2.00 3.89 3.57 3.65 4.00 7.00 7.00 4.00	3.00 5.05 2.60	3.00 4.00 4.00 4.00 5.00 7.00 3.00	3.50 3.90 5.00 4.00 4.00 1.33 3.33 3.22	3.67 9.00	3.20 3.20 3.20 3.20 3.20 3.20 3.20 3.20	2.83 4.33 4.75 1.88 3.88 1.88 3.43 3.43 3.45 1.45 1.45 1.45 1.45 1.45 1.45 1.45 1	3.84	3.75
3.83 5.60 4.25 4.00 4.00 4.00 5.67 4.00 6.00		2.00 3.89 3.57 3.65 3.20 7.00 4.00	7. 44.00 3.00 3.00 5.05 2.60	4.00 4.00 4.00 7.00 3.00	3.33 3.22 3.23	9.00 4.50 5.33 5.33 3.38 3.38 3.50 2.00	3.20	5.00 5.00 3.88 3.88 6.00 6.00 3.43 3.45	3.84	3.75
5.60 4.25 4.25 4.00 4.00 3.13 8.00 8.00 4.00 4.00 5.67 6.00 6.00 6.00 7.83 8.60 6.00 7.83 8.60 6.00 7.83 8.60 6.00 7.83 8.60 6.00		3.89 3.57 3.65 4.00 7.00 7.00 4.00	1.00 1.00	4.00 4.00 4.00 7.00 3.00	5.00 4.83 3.33 3.22	4.50 5.33 5.33 4.73 4.73 3.38 3.50 2.00	3.20	5.00 3.88 3.88 6.00 5.00 3.43 3.45	3.84	3.75
5.60 4.25 4.25 4.00 4.00 4.40 3.13 8.00 8.00 4.75 2.00 4.75 7.00 6.00 6.00 6.00 7.83 8.60		3.89 3.65 3.65 4.00 7.00 7.00 4.00	4.00 4.00 4.00 3.00 3.00 5.05 2.60	4.20 4.00 4.00 4.00 7.00 3.00	5.00 4.83 3.33 3.22	5.33 5.33 4.73 4.73 9.00 9.00 3.50 2.00	3.20 3.20 3.20 3.20 3.20 3.20	5.00 3.88 3.88 6.00 6.00 3.43 3.45 3.62	6.00	3.75
4.25 4.00 4.00 4.40 3.61 3.61 3.61 4.00 6.00 6.00 6.00 6.00 6.00 6.00 7.83 8.20 7.67 8.00 8.00 8.00 8.00 8.00 8.00 8.00 8.0		3.65 3.65 4.00 7.00 7.00 4.00	4.00 4.00 1.00 3.00 3.00 5.05 2.60	4.20 4.00 4.00 5.00 7.00 3.00	4.83 3.33 3.22	5.33 4.73 4.73 9.00 9.00 3.50 2.00	3.25 3.20 3.20 3.20 3.20 2.67	3.43	3.84 3.84 6.00 5.00	3.75
4.55 4.00 4.40 3.13 8.00 4.75 2.00 4.75 6.00 6.00 6.00 7.00		3.65 4.00 3.20 7.00 4.00	5.44 3.00 5.05 2.60	4.20 4.00 1.83 1.83 1.83 1.00 1.00 1.00	4.83 4.00 4.00 4.00 3.33	0.00 0.00 3.38 3.50 3.43	3.25	3.43	3.84	3.75
4.00 4.40 3.13 8.00 4.75 2.00 4.50 6.00 6.00 5.30 5.30 4.83		4.00 3.20 7.00 4.00	5.44 3.00 5.05 2.60	4.00 1.00 1.00 1.00 1.00 1.00	4.00 	3.38	3.20	3.45	5.00	3.75
4.00 4.40 3.13 8.00 8.00 4.75 2.00 4.50 6.00 6.00 6.00 5.30 5.30 7.83 8.00		4.00 7.00 7.00 4.00	3.00 3.00 5.05 2.60	4.00 	3.33	3.38 3.50 3.50 2.00	3.20	3.43	5.00	3.75
2.67 4.00 4.40 3.13 8.00 3.61 2.00 4.00 6.00 6.00 6.00 6.00 6.00 6.00 7.65 6.00 6.00 7.65 7.65 7.65 7.65 7.65 7.65 7.65 7.65		3.20 7.00 3.89	3.00	3.83 4.00 4.00 7.00 3.00	3.33	3.38	3.20	3.45	6.00 5.00 5.67	3.75
4.00 4.40 3.13 8.00 8.00 4.75 2.00 4.00 6.00 6.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00		3.20	3.00	3.83 3.83 4.00 4.00 7.00 3.00	3.33	3.38 3.50 3.50 2.00	3.20	3.43	6.00 5.00 5.67	3.75
4.40 3.13 8.00 8.00 3.61 4.75 2.00 4.00 6.00 6.00 6.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00	3.58 3.00 3.37 3.37	3.20	3.00 3.00 5.05 5.05	3.83 4.00 5.00 4.00 7.00 3.00	3.33	3.38	3.20	3.43	5.00	3.75
3.13 3.61 3.61 4.75 2.00 4.00 6.00 6.00 6.00 7.00 6.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00 6.00 7.00	3.37	3.89	3.00	4.00 4.00 7.00 3.00	3.33	3.50	3.20	3.62	5.67	3.75
8.00 3.61 4.75 2.00 4.00 5.67 4.50 6.00 6.00 5.30 5.30 4.83	3.37	3.89	5.05	5.00 4.00 7.00 3.00	3.33	3.43	3.20	3.62	5.67	3.75
3.61 4.75 2.00 4.00 5.67 4.65 4.65 4.83 4.83	3.37	3.89	2.60	7.00	3.33	3.43	3.20	3.62	5.67	3.75
4.75 2.00 4.00 5.67 4.50 6.00 6.00 6.00 5.30 4.83	1 1 7 1 1 1	4.00	2.60	7.00 3.00	3.33	2.00	2.67			
4.75 2.00 4.00 6.00 6.00 6.00 6.00 7.00 7.00 7.00 7	4.25	4.00	2.60	3.00	3.33	2.00	2.67	5		
4.75 2.00 4.00 6.00 6.00 6.00 6.00 7.00 5.30 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7	4.25		2 40	3.00	3.22	ł		9.7	4.00	
2.00 4.00 6.00 6.00 6.00 7.00 5.30 7.00 7.00 7.00 7.00 7.00 7.00 7.00 7	4.25	}	7				4.50	3.29	1	
4.00 6.00 6.00 6.00 7.30 5.30 7.83	1	ł	1	!	!	1	ł	3.50	ŀ	
5.67 4.50 6.00 6.00 7.00 5.30 7.00		ł	1	4.00	ł	1	1.00	4.75	4.00	
4.50 6.00 6.00 4.65 5.30 5.30 4.83	I	1	3.64	1	2.67	4.00	4.00	4.25	1.50	
4.50 6.00 4.65 5.30 5.00 4.83	1	4.67	3.50	1	4.00	3.00	3.00	1	ł	
6.00 4.65 5.30 5.00 4.83	4.95		4.04	2.50	2.00	4.16	ł	4.57	2.33	
4.65 5.30 5.00 4.83	ı	5.00	1	3.67	1	1	3.50	5.33	ŀ	
4.65 4.00 5.30 5.00 4.83	1	ł	1	4.00	;	00.9	ľ	3.50	3.75	
5.30 5.00 5.00 4.83	4.82	4.15	3.70	3.58	2.95	3.21	3.53	4.12	2.71	3.88
5.30 5.00 4.83										
5.30 5.00 4.83	7.20	4.45	4.91	4.33	I	ł	3.75	4.71	3.20	
5.00	2.00	3.60	3.88	3.40	I	ł	3.25	2.50	2.50	
4.83	3.70	4.75	2.71	5.60	1	ł	4.00	2.00	3.50	
Southeastern Region	4.90	4.35	4.00	4.63	-	1	3.56	4.52	90 %	4 34
Carbon 4.50 2.00	3.50	2.00	1	7.00	3.00	3.00	5.00	}	ł	
Emery	ł	}	1	1	}	!	ł	4.00	4.00	
Grand	1	2.50	}		ł	3.00	3.25	;	2.78	
6.00	4.00	3.00	1	4.00	1.75	3.00	ı	3.00	3.00	
REGIONAL TOTALS 5.40 3.50	3.67	2.60	ł	5.50	2.17	3.00	3.60	3.50	2.93	3.66
STATE TOTALS 4.44 3.69	4.20	3.97	4.06	4.29	3.18	3.56	3.44	4.00	3.22	3.88

Table 8. Irend of blue grouse observed per 100 hours, 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	33	800	23	230	1	2	38	}	70	0	1	
Cache	4	7	44	74	1	7	ı	11	ł	11	20	
Davis	188	140	35	7	ł	33	91	8	20	232	300	
Morgan	127	1	88	8	ł	4	200	23	4	23	1	
Rich	1	ł	ļ	1	ł	ł	ł	!	ន	0	0	
Summit	400	820	38	293	1	I	12	38	ŀ	900	ł	
Weber	42	51	58	174	7.1	4	l	167	100	267	56	
REGIONAL TOTALS	65	30	57	121	20	15	28	58	27	109	90	53
Central Region												
Juab	98	38	336	73	}	53	125	8	156	0	ł	
Salt Lake	Ξ	70	450	36	48	7	1	ł	1	400	1	
Sanpete	65	33	ŀ	1	281	1	I	ł	}	1,400	1	
Tooele	1,080	557	248	27.1	ł	344	1	536	444	206	1,000	
Utah	95	176	104	25	36	32	1	165	ł	229	367	
Wasatch	46	88	3		23	20	1	ł	ŀ	0	1	
REGIONAL TOTALS	113	109	122	22	127	95	17	183	254	194	683	127
Southern Region												
Beaver	1	107	ł	4	220	133	233	33	137	175	164	
Garfield	98	19	1	1	ı	1	141	122	141	195	{	
Iron	120	333	275	1	I	ł	ł	1	ł	1,200	}	
Kane	ŀ	1	1	1	1	122	ł	213	257	383	127	
Millard	I	2,300	1	1	248	15	107	133	200	525	100	
Piute	ţ	1	I	227	225	1	<b>500</b>	29	566	{	ł	
Sevier	38	46	89	23	48	8	72	155	ł	275	738	
Washington	1	125	ł	800	l	117	1	1	333	920	1	
Wayne	٥	1	1	i	ł	1		700	1	420	475	
REGIONAL TOTALS	26	63	74	4	74	80	122	140	178	309	247	114
Northeastern Region												
Daggett	о́г	420	9	736	389	632	1	}	300	1,255	230	
Duchesne	148	509	330	75	126	5	1	1	5	2	121	
Uintah	19	4	256	308	54	239	1	ł	009	55	37	
REGIONAL TOTALS	83	150	220	228	138	232	ł	ł	126	286	120	183
Southeastern Region												
Carbon	4	9	32	17	1	8	83	33	9	ŀ	1	
Emery	1	33	1	l	1	1	1	1	1	200	1	
Grand	9	1	ł	ł	ļ	}	22	360	120	300	1	
San Juan	66	24	46	218	1	100	73	53	!	400	!	
REGIONAL TOTALS	46	59	38	128	1	96	9	123	96	400	1	112
STATE TOTALS	106	68	93	93	6	83	55	101	110	197	166	100

Table 9. Summary of effort expended on forest grouse brood counts, 1988.

Region and	Vehicle Miles		Hours Effort	Expended	
County	Traveled	Vehicle	Horseback	Walking	Total
Northern Region	-				
Box Elder	60	4	0	14	18
Cache	745	49	9	8	66
Davis	188	18	0	11	29
Morgan	<del></del>				
Rich	85	12	10	0	22
Summit					
Weber	40	3	6	0	9
REGIONAL TOTALS	1,118	86	25	33	144
Central Region		-			
Juab					
Salt Lake					
Sanpete		<del></del>			
Tooele	25	3	0	0	3
Utah	30	3	0	0	3
Wasatch					
REGIONAL TOTALS	55	6	0	0	6
Southern Region					_
Beaver	40	4	0	10	14
Garfield		<del></del>			
Iron					
Kane	30	9	0	2	11
Millard	70	13	3	0	16
Piute					
Sevier	0	0	8	0	8
Washington					
Wayne	20	2	2	0	4
REGIONAL TOTALS	160	28	13	12	53
Northeastern Regi	<u>on</u>				
Daggett	227	20	0	0	20
Duchesne	250	20	0	4	24
Uintah	81	7	18	2	27
REGIONAL TOTALS	558	47	18	6	71
<u>Southeastern Regi</u>	<u>on</u>				
Carbon	. <del></del>				
Emery					
Grand					
San Juan					
REGIONAL TOTALS	<del></del>				
STATE TOTALS	1,891	167	56	51	274

<sup>\*</sup>Estimated

Table 10. Summary of blue grouse hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Birds	Birds per	% of	% of
County	Size*	Afield	Bagged	<u> Hunter-day</u>	Pressure	Harvest
Northern Region						
Box Elder	27	1,051	1,285	1,22	3.60	4.07
Cache	96	6,077	6,678	1.10	20.80	21.16
Davis	23	1,051	884	.84	3.60	2.80
Morgan	19	818	684	.84	2.80	2.16
Rich	28	1,385	1,101	.80	4.74	3.49
Summit	17	667	550	.83	2.28	1.74
Weber	54 _	3,840	<u>2,871</u>	.75	13.14	9.10
REGIONAL TOTALS	264	14,893	14,058	.94	<u>50.97</u>	44.55
<u>Central Region</u>						
Juab	10	267	367	1.38	.91	1.16
Salt Lake	8	233	183	.79	.80	.58
Sanpete	28	968	1,185	1.22	3.31	3.75
Tooele	34	1,101	1,719	1.56	3.77	5.44
Utah	59	2,971	3,422	1.15	10.17	10.84
Wasatch	20	684	667	.98	2.34	2,11
REGIONAL TOTALS	159	6,227	7,546	1.21	21.31	23.91
Southern Region						
Beaver	7	217	333	1.54	.74	1.05
Garfield	8	200	317	1.58	.68	1.00
Iron	16	550	734	1.33	1.88	2.32
Kane	1	33	50	1.50	.11	.15
Millard	7	333	717	2.15	1.14	2.27
Piute	14	651	851	1.31	2.22	2.69
Sevier	56	3,005	3,606	1.20	10.28	11.42
Washington	1	100	16	.17	.34	.05
Wayne						
REGIONAL TOTALS	110	5,092	6,628	1.30	17.42	21.00
Northeastern Reg	ion		• • • • • • • • • • • • • • • • • • • •			
Daggett	12	584	550	.94	2.00	1.74
Duchesne	16	467	534	1.14	1.60	1.69
Uintah	30	1,068	1,285	1.20	3.65	4.07
REGIONAL TOTALS	58	2.120	2,370	1.12	7.25	7.51
Southeastern Reg	ion		•	*		
Carbon	2	50	33	.67	.17	.10
Emery	6	267	450	1.69	.91	1.42
Grand	5	450	367	.81	1.54	1.16
San Juan	2	50	66	1.33	.17	.21
REGIONAL TOTALS	15	818	918	1.12	2.79	2.91
Unknown Counties	1	66	33	.50	.22	.10
STATE TOTALS	607	29,219	31,556	1.08	100.00	100.00

<sup>\*</sup>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, 1988.

Region and County	Sample	Hunter-days		Birds per	% of	% of
Northern Region	Size*	Afield	Bagged	<u>Hunter-day</u>	Pressure	Harves
Box Elder	14	. 717		0.0		
Cache		717	667	.93	3.26	3.49
Davis	85 17	5,643	4,441	.79	25.64	23.25
	17	884	684	.77	4.02	3.58
Morgan Rich	14	667	601	.90	3.03	3.14
Summit	33	1,385	1,302	.94	6.29	6.81
Weber	31	1,302	1,402	1.08	5.91	7.34
REGIONAL TOTALS	36	<u>2.170</u>	1,853	.85	9.86	9.70
Central Region	230	12,772	10,952	.86	58.03	57.34
	-	100	000			
Juab	5	183	200	1.09	.83	1.04
Salt Lake	9	384	217	.57	1.74	1.13
Sanpete	30	1,485	1,268	.85	6.75	6.64
Tooele Utah	6	217	484	2.23	.98	2.53
	42	2,153	1,485	.69	9.78	7.77
Wasatch	23	851	851	1.00	3.86	4.45
REGIONAL TOTALS	115	5,276	4,508	.85	<u>23.97</u>	23.60
Southern Region	_					
Beaver	1	66	16	.25	.30	.08
Garfield	0	0	0	0.00	0.00	0.00
Iron	1	33	100	3.00	.15	.52
Kane	1	16	50	3.00	.07	.26
Millard	3	66	116	1.75	.30	.61
Piute	7	300	517	1.72	1.36	2.70
Sevier	28	1,970	1,602	.81	8.95	8.39
Washington	0	0	0	0.00	0.00	0.00
Wayne	1	16	16	1.00	07	.08
REGIONAL TOTALS	42	2,471	2,421	98	11.22	12.67
<u>Northeastern Regio</u>						
Daggett	1	33	50	1.50	.15	.26
Duchesne	. 8	267	300	1.13	1.21	1.57
Uintah	16	751	<u>567</u>	.76	3.41	2.97
REGIONAL TOTALS	25	1,051	918	.87	4.77	4.80
<u>Southeastern Regio</u>						
Carbon	7	300	200	. 67	1.36	1.04
Emery	3	66	66	1.00	.30	.34
Grand	0	0	0	0.00	0.00	0.00
San Juan	0	0	0	0.00	0,00	<u>:0.00</u>
REGIONAL TOTALS	10	367	267	.73	1.66	1.39
Unknown Counties	2	66	33	.50	.30	.17
STATE TOTALS	424	22,006	19,100	.87	100.00	100.00

<sup>\*</sup>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, 1988.

				<del></del>	~ -
					% of
Size*	Afield	Bagged	Hunter-day	<u> Pressure</u>	Harvest
					3.83
					21.10
					3.14
	-				2.64
		-			4.55
	•				3.55
					9.53
513	24,276	<u>25,913</u>	1.07	<u>46.93</u>	48.37
	•				
					1.12
22					1.40
68					4.70
					4.17
110	4,708				9.47
60	2,220_				3.05
338	13,173	12,822	.97	25.46	<u>23.94</u>
9	267	350	1.31	.51	.65
13	400	400	1.00	.77	.74
28	884	951	1.08	1.71	1.77
3	66	100	1.50	.12	.18
18	701	951	1.36	1.35	1.77
22	1,118	1,502	1.34	2.16	2.80
98	4,925	5,810	1.18	9.52	10.84
3	166	16	.10	.32	.03
5	200	50	.25	.38	.09
199	8,732	10,134	1.16	16.88	18.92
<u>on</u>					
16	768	500	.65	1.48	.93
26	851	834	.98	1.64	1.55
53	2,137	1,953	.91	4.13	3.64
95	3,756	3,289	.88	7.26	6.14
<u>on</u>					
11	484	233	.48	.93	.43
16	584	617	1.06	1.12	1.15
5	450	367	.81	.87	.68
4	100	66	.67	.19	.12
36	1,619	1,285	.79	3.12	2.40
3	166	116	.70	.32	.21
1,184	51,726	53,562	1.04	100.00	100.00
	53 110 60 338  9 13 28 3 18 22 98 3 5 199 on 16 26 53 95 on 11 16 5 4 36	Size*         Afield           49         1,986           167         9,133           44         1,719           34         1,435           67         2,654           59         2,203           93         5,142           513         24,276           25         701           22         868           68         2,988           53         1,686           110         4,708           60         2,220           338         13,173           9         267           13         400           28         884           3         66           18         701           22         1,118           98         4,925           3         166           5         200           199         8,732           on         11         484           16         584           5         450           4         100           36         1,619           3         166	Size*         Afield         Bagged           49         1,986         2,053           167         9,133         11,303           44         1,719         1,686           34         1,435         1,419           67         2,654         2,437           59         2,203         1,903           93         5,142         5,109           513         24,276         25,913           25         701         601           22         868         751           68         2,988         2,521           53         1,686         2,237           110         4,708         5,075           60         2,220         1,636           338         13,173         12,822           9         267         350           13         400         400           28         884         951           3         66         100           18         701         951           22         1,118         1,502           98         4,925         5,810           3         166         16           5	Size*         Afield         Bagged         Hunter-day           49         1,986         2,053         1.03           167         9,133         11,303         1.24           44         1,719         1,686         .98           34         1,435         1,419         .99           67         2,654         2,437         .92           59         2,203         1,903         .86           93         5,142         5,109         .99           513         24,276         25,913         1.07           25         701         601         .86           22         868         751         .87           68         2,988         2,521         .84           53         1,686         2,237         1.33           110         4,708         5,075         1.08           60         2,220         1,636         .74           338         13,173         12,822         .97           9         267         350         1.31           13         400         400         1.00           28         884         951         1.36           2	Size*         Afield         Bagged         Hunter-day         Pressure           49         1,986         2,053         1.03         3.84           167         9,133         11,303         1.24         17.65           44         1,719         1,686         .98         3.32           34         1,435         1,419         .99         2.77           67         2,654         2,437         .92         5.13           59         2,203         1,903         .86         4.26           93         5,142         5,109         .99         9.94           513         24,276         25,913         1.07         46.93           25         701         601         .86         1.35           22         868         751         .87         1.67           68         2,988         2,521         .84         5.77           53         1,686         2,237         1.33         3.26           110         4,708         5,075         1.08         9.10           60         2,220         1,636         .74         4.29           338         13,173         12,822         .97

<sup>\*</sup>Total hunter trips from questionnaire returns.

Table 13. Summary of forest grouse bagged per hunter-day by region and county, 1982-88.

Region and				Year			
County	1982	1983	1984	1985	1986	1987	1988
Northern Region							
Box Elder	0.68	0.87	0.60	0.45	0.60	0.68	1.03
Cache	0.78	1.04	0.76	0.90	0.96	1.07	1.03
Davis	0.55	0.98	0.66	0.50	0.50	0.71	0.98
Morgan	0.73	1.01	0.44	0.88	0.64		
Rich	0.66	0.65	0.44			1.00	0.99
Summit	0.81	0.75	0.54	0.75	0.39	1.56	0.92
Weber	0.81			0.70	0.63	1.25	0.86
REGIONAL TOTALS	0.74	0.84	0.60	0.60	0.85	1.41	0.99
Central Region	0.74	0.92_	0.66_	0.71	0.76	1.12	1.07
Juab	0 71	0.77					
	0.71	0.77	0.43	1.00	0.14	1.14	0.86
Salt Lake	0.86	0.84	1.25	0.65	0.75	1.05	0.87
Sanpete	0.70	0.60	0.99	0.72	0.67	1.12	0.84
Tooele	1.07	0.97	0.40	1.00	0.89	1.24	1.33
Utah	0.77	0.85	0.84	0.86	0.59	1.04	1.08
Wasatch	0.55	0.76	0.43	0.59	0.51	.94_	0.74
REGIONAL TOTALS	0.75	0.78	0.78	0.75	0.62	1.07	0.97
Southern Region							
Beaver	1.00	1.13	1.05	0.59	1.00	0.91	1.31
Garfield	0.50	1.09	0.67	0.79	0.27	0.57	1.00
Iron	0.73	1.03	0.59	0.94	1.21	0.74	1.08
Kane	0.53	0.05	0.67	0.78	0.14	2.33	1.50
Millard	0.78	0.54	0.64	0.50	1.14	0.75	1.36
Piute	0.70	1.16	1.27	0.94	1.42	1.19	1.34
Sevier	0.82	1.03	0.73	0.77	0.88	1.00	1.18
Washington	0.00	0.42	0.00	2.14	2.01	0.17	0.10
Wayne	0.56	0.46	0.34	1.09	0.33	0.90	0.25
REGIONAL TOTALS	0.75	0.89	0.82	0.82	0.98	0.93	1.16
Ortheastern Region		·				<u> </u>	<u> </u>
Daggett	1.15	1.00	0.47	0.94	1.19	1.10	0.65
Duchesne	0.75	0.99	0.67	0.60	1.07	1.29	0.98
<b>Uintah</b>	1.20	0.98	1.23	0.94	1.19	1.63	0.98
EGIONAL TOTALS	0.91	0.98	0.96	0.83	1.16	1.43	0.88
outheastern Region		/4	<u> </u>	7.00	± • ± v		<u>v.00</u>
Carbon	0.50	0.48	0.00	0.71	0.83	0.92	0.48
Emery	0.79	0.70	0.90	0.35	0.65	0.96	1.06
Grand	0.50	0.25	1.60	0.64	1.29	1.91	0.81
San Juan	1.00	0.25	0.67	0.20	0.67	1.00	0.67
EGIONAL TOTALS	0.69	0.54	0.86	0.52	0.81	1.14	
	<u> </u>	<u> </u>	V.0U_	0.32	<u> </u>	1,14	0.79
Inknown Counties	0.67	1.33	1.00	1.00	0.00	0.55	0.70
TATE TOTALS	0.76	0.87	0.75	0.74	0.79	1.09	1.04

Table 14. Percentage distribution of forest grouse harvest by region and county, 1982-88.

Region and			· .	Year			
County	1982_	1983	1984	1985	1986	1987	1988
<u>Northern Region</u>							
Box Elder	4.79	4.31	3.38	2.23	2.59	1.62	3.83
Cache	18.02	22.58	15.72	17.35	21.23	14.98	21.10
Davis	3.03	5.73	4.48	5.66	2.50	1.83	3.14
Morgan	3.17	3.42	2.88	3.90	3.02	1.13	2.64
Rich	3.73	2.76	3.78	4.26	2.24	4.05	4.55
Summit ·	4.15	3.78	2.49	3.52	2.93	4.65	3.55
Weber	9.71	8.58	7.86	4,91	10.44	6.65	9.53
REGIONAL TOTALS	46.59	51,16	49.59	41.85	44.96	34.93	48.37
Central Region							
Juab	1.06	1.60	1.19	1.02	0.26	1.29	1,12
Salt Lake	2.53	2.80	4.48	2.41	1.81	1.18	1.40
Sanpete	4.57	4.89	6.97	5.84	4.57	6.43	4.70
Tooele	4.15	3.06	1.00	2.87	4.74	3.94	4.17
Utah	12.03	10.67	13.34	9.65	8.02	10.22	9.47
Wasatch	3.80	3.69	2.58	5.01	3.02	3.94	3.05
REGIONAL TOTALS	28.15	26.71	29.56	26.80	22.43	27.04	23.94
Southern Region							
Beaver	0.42	0.80	2.09	2.13	0.86	1.56	0.65
Garfield	0.21	1.64	1.39	1.39	0.26	0.64	0.74
Iron	1.69	1.64	1.59	2.87	3.53	1.40	1.77
Kane	0.70	0.04	0.59	0.65	0.08	0.37	0.18
Millard	0.99	0.31	0.70	0.65	3.45	1.13	1.77
Piute	2.18	0.98	5.57	1.48	2.33	2.05	2.80
Sevier	6.26	4.71	4.38	4.45	6.56	11.35	10.84
Washington	0.00	0.22	0.00	1.39	0.52	0.05	0.03
Wayne	0.35	0.27	0.40	1.11	0.17	0.48	0.09
REGIONAL TOTALS	12.81	10.61	16.72	16.14	17.77	19.09	18.92
Northeastern Region							
Daggett	2.67	0.84	0.89	1.48	3.19	1.73	0.93
Duchesne	3.24	3.78	1.59	2.50	2.67	4.75	1.55
Uintah	3.80	3.73	7.56	6.21	6.03	8.27	3.64
REGIONAL TOTALS	9,71	8.35	10.05	10.20	11.91	14.76	6.14
Southeastern Region							
Carbon	0.70	0.71	0.00	2.23	0.86	0.64	0.43
Emery	0.77	1.38	1.79	1.11	0.95	1.29	1.15
Grand	0.28	0.09	0.79	1.48	0.77	1.13	0.68
San Juan	0.84	0.13	0.40		0.34		0.12
REGIONAL TOTALS	2.60	2.30	2.99	5.01	2.93	3.51	2,40
Unknown Counties	0.14	0.89	0.10	0.00	0.00	0.64	0.21
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00
					<del></del>		

Table 15. Percentage distribution of forest grouse hunting pressure by region and county, 1982-88.

d	· ·		·	Year		·	<del></del>
	1982	1983	1984	1985	1986	1987	1988
Region					2,00		<u> </u>
er	5.33	4.30	4.25	3.63	4.65	2.60	3.84
	17.58	18.86	15.35	14.18	14.69	15.26	17.65
	4.16	5.11	.5.07	8.29	3.90	2.84	3.32
	3.30	2.94	4.91	3.29	3.15	1.24	2.77
	4.26	3.72	3.28	4.18	4.05	2.84	5.13
	3.89	4.41	3.42	3.70	4.50	4.08	4.26
	9.11	8.87	9.69	6.02	9.00	5.14	9.94
TOTALS	47.63	48.22	45.97	43.29	43.93	34.02	46.93
egion	17100	10.00	43.77	TJ.27	73.72	57.02	70.95
	1.12	1.82	2.08	0.75	1.50	1.24	1.35
ke	2.24	2.90	2.68	2.74	2.40	1.24	1.67
	4.95	7.09	5.29	5.96	4.65	6.27	5.77
	2.93	2.75	1.86	2.12	3.90	3.49	3.26
	11.77	10.96	11.84	8.29	10.49	10.76	9.10
	5.22	4.22	4.54	6.23	4.50	4.61	4.29
TOTALS	28.24	29.74	28.31	26.09	27.44	27.63	<u>25.46</u>
Region		27174	20.51	20.02	<u></u>	27.02	23.40
	0.32	0.62	1.49	2.67	1.05	1.89	0.51
đ	0.32	1.31	1.56	1.30	1.05	1.24	0.77
<del></del>	1.76	1.39	2.01	2.26	2.25	2.07	1.71
	1.01	0.85	0.67	0.61	0.75	0.17	0.12
	0.96	0.50	0.82	0.96	1.35	1.65	1.35
	2.34	0.74	3.28	1.16	1.20	1.89	2.16
	5.75	3.99	4.47	4.24	6.30	12.48	9.52
ton	0.05	0.46	0.00	0.48	0.30	0.35	0.32
	0.48	0.50	0.89	0.75	0.75	0.59	0.32
TOTALS	13.00	10.38	15.20	14.45	15.00	22.36	16.88
ern Region		20100	13120	<u> </u>	13.00	22.30	
	1.76	0.74	1.41	1.16	2.10	1.71	1.48
e	3.25	3.33	1.79	3.08	3.45	4.02	1.64
_	3.09	3.33	4.62	4.86	4.35	5.56	4.13
TOTALS	8.10	7.40	7.82	9.10	9.90	11.30	7.26
ern Region		,,,,,		,,,,,,	7.70		7.20
orth Mogron	1.07	1.20	0.30	2.33	0.45	0.76	0.93
	0.75	1.70	1.49	2.33	1.80		1.12
	0.43	0.31	0.37	1.71	0.75		0.87
n	0.64	0.46	0.44	0.68	0.75		0.19
TOTALS	2.88	3.67	2.61	7.05	3.75	3.37	3.12
2 4 22220	4,00	3.07	2,01	7.603	<u> </u>	, , , , , , , , , , , , , , , , , , ,	
ounties	0.16	0.57	0.07	0.00	0.00	1.30	0.32
ALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00
ALS	100.00	100.00	100.00	100.00		100.00	100.00 100.00

Table 16. Statewide summary of forest grouse harvest statistics, 1963-88.

Known         Percent         Total         Affield         Ruffed         Blue         Total           766         (5.6)         13,608         12,313         0.44         0.66         1.11           652         (5.1)         12,691         10,566         0.51         0.63         1.20           520         (6.0)         8,669         10,504         0.31         0.47         0.83           696         (5.7)         12,321         12,387         0.56         0.38         0.99           777         (13.0)         17,526         17,773         0.48         0.38         0.99           779         (8.5)         32,414         26,537         0.64         0.47         1.22           793         (8.7)         31,901         29,100         0.59         0.47         1.22           793         (8.7)         31,901         29,100         0.59         0.47         1.12           794         (6.2)         42,518         38,940         0.50         0.47         1.10           649         (6.2)         42,41         50,579         0.31         0.45         1.01           524         (6.2)         42,41         42,		Total			Tc	Total Harvest	rest			Hunter-days	Grouse/Hunter-day	/Hunte	r-day	Grouse	Grouse Per Hunter	ınter
7,425         5,470         (40.2)         7,372         (54.2)         7,66         (5.1)         12,691         10,566         0.51         0.44         0.66         1.11           6,487         5,354         (42.2)         6,685         (57.7)         652         (5.1)         12,691         10,566         0.51         0.47         0.83           6,683         6,966         (55.6)         4,689         (37.7)         (3.80)         2,77         (13.0)         17,526         17,773         0.48         0.93           13,061         17,048         (43.7)         12,604         (38.9)         2,762         (8.5)         24,744         26,537         0.46         0.38         0.99           13,061         17,048         (44.2)         10,419         (48.1)         10,419         (48.2)         12,775         11,773         0.48         0.38         0.99         0.47         0.83         0.99         0.92         10,27         11,23         0.44         0.56         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.92         0.9	Year	Hunters	Ruffed	Percent		Percent	Unknown	Percent	Total	Afield	Ruffed	Blue	Total	Ruffed	B}ne	Total
6,447 5,354 (42.2) 6,685 (57.7) 652 (5.1) 12,691 10,566 0.51 0.63 1.20 16,683 6,683 6,686 13,224 (58.8) 520 (6.0) 8,669 10,564 0.31 0.47 0.83 6,683 6,683 6,986 (55.6) 4,659 (37.2) 4,694 (38.9) 5.20 (6.0) 8,669 10,577 0.30 0.47 0.83 0.99 9,420 (84.4) 6,773 (38.6) 2,777 (13.0) 17,226 17,773 0.64 0.31 0.47 0.83 13,061 17,048 (52.6) 12,604 (38.9) 2,762 (8.5) 32,44 26,537 0.64 0.47 1.22 112,775 15,590 (48.1) 13,419 (48.5) 15,789 (13.7) 13,989 24,572 0.39 0.42 0.87 112,775 15,590 (48.9) 13,515 (44.4) 2,793 (8.7) 13,199 24,510 0.54 0.47 1.10 16,604 0.5,644 (8.6) 13,214 (42.1) 2,393 (7.5) 31,901 29,100 0.54 0.47 1.10 16,604 0.5,644 (8.6) 13,749 (43.1) 2,393 (7.5) 31,901 29,100 0.54 0.47 1.10 16,604 0.5,644 (8.6) 13,214 (42.1) 2,433 (7.5) 31,901 29,100 0.54 0.47 1.10 16,604 0.5,644 0.61 0.5,439 0.5,439 0.5,439 0.5,430 0	1963	7,425		(40.2)	7,372	(54.2)	766	(5.6)	13,608	12,313	0.44	99.0	1.1	0.74	0.99	1.83
6,005 3,225 (37.2) 4,924 (56.8) 520 (6.0) 8,669 10,504 0.31 0.47 0.83 6,683 (56.83 (56	1964	6,487		(42.2)	6,685	(57.7)	652	(5.1)	12,691	10,566	0.51	0.63	1.20	0.82	1.03	1.96
6,683 6,966 (56.6) 4,659 (37.8) 696 (5.7) 12,321 12,387 0.56 0.38 0.99 13,401 17,048 (32.6) 12,604 (38.9) 2,727 (13.0) 17,526 17,773 0.48 0.38 0.39 13,061 17,048 (32.6) 12,604 (38.9) 2,762 (38.9) 2,742 0.55,37 0.48 0.38 0.49 13,061 17,048 (32.6) 13,515 (42.4) 2,793 (8.7) 21,498 24,572 0.38 0.42 0.87 1.22 12,733 15,759 (48.9) 13,515 (42.4) 2,793 (8.7) 21,498 24,572 0.38 0.42 0.87 1.20 13,363 15,759 (48.9) 13,515 (42.4) 2,793 (8.7) 21,498 26,519 0.59 0.51 1.20 13,363 15,759 (48.9) 13,515 (42.4) 2,793 (8.7) 21,498 26,519 0.51 0.59 0.51 1.20 15,540 20,648 (48.6) 19,221 (42.2) 2,649 (6.2) 42,518 38,940 0.55 0.44 1.10 17,548 17,183 (15.8) 36,846 (81.4) 1,233 (2.7) 45,232 44,738 0.16 0.82 1.01 17,548 17,183 (15.8) 36,846 (81.4) 1,233 (2.7) 45,232 44,738 0.16 0.82 1.01 17,548 17,183 (15.8) 36,846 (81.4) 1,233 (2.7) 45,232 44,738 0.16 0.82 1.01 17,548 17,183 (15.8) 36,846 (81.4) 1,233 (2.7) 42,471 48,746 0.37 0.46 0.82 1.13 20,102 13,138 (54.2) 3,236 (55.2) 3,554 (6.7) 62,432 6.422 0.42 0.53 1.13 20,102 13,138 (54.2) 3,236 (55.2) 3,554 (6.7) 62,432 6.422 0.42 0.53 1.12 17,183 (15.8) 36,846 (85.3) 3,425 (65.3) 3,436 (55.3) 3,436	1965	6,005		(37.2)	4,924	(56.8)	220	(0.9)	8,669	10,504	0.31	0.47	0.83	0.54	0.82	1.44
9,420 8,476 (48.4) 6,773 (38.6) 2,277 (13.0) 17,526 17,773 0.48 0.38 0.99 12,520 12,620 12,604 (38.9) 2,776 (8.5) 32,414 26,537 0.64 0.47 1.22 12,523 9,490 (44.1) 10,419 (48.5) 12,599 (7.4) 21,499 24,572 0.38 0.42 0.87 12,515 15,590 (48.9) 13,515 (42.4) 2,793 (7.5) 31,901 29,100 0.54 0.47 1.10 16,640 20,648 (48.6) 19,221 (45.2) 2,649 (6.2) 31,901 29,100 0.54 0.47 1.10 17,580 17,581 (48.9) 13,749 (43.1) 2,333 (7.5) 31,901 29,100 0.54 0.47 1.10 17,580 24,561 (39.3) 32,266 (31.6) 5,642 0.00 6.54 0.47 1.10 17,581 15,590 (37.1) 2,138 (54.5) 3,540 (61.4) 12,333 (2.7) 45,222 44,739 6.5,289 0.44 0.58 1.12 17,580 17,183 (54.5) 3,540 (54.5) 2,440 12,590 0.31 0.45 0.84 1.12 17,580 13,30 13,256 (51.6) 5,642 0.00 6.54 0.47 1.10 14,527 13,590 (37.1) 2,138 (54.5) 3,573 (61.7) 63,456 15,09 0.31 0.46 0.87 1.12 11,5457 (33.1) 35,660 (55.2) 3,553 (61.0) 5,461 0.35 1.12 11,5457 (33.1) 35,660 (55.2) 3,553 (61.0) 5,461 0.35 1.12 11,5457 (33.0) 17,356 (51.0) 17,356 (61.0) 17,456 (51.0) 17,447 (51.0) 17,456 (51.0) 17,447 (51.0) 17,4	9961	6,683		(26.6)	4,659	(37.8)	969	(5.7)	12,321	12,387	0.56	0.38	0.99	1.04	99.0	1.8 24
13,066 17,048 (22.6) 12,604 (38.9) 2,762 (8.5) 32,414 26,537 0.64 0.47 1.22 12,523 9,490 (44.1) 10,491 (48.5) 1,589 (7.4) 21,498 24,572 0.38 0.42 0.87 12,775 15,590 (44.1) 10,491 (48.5) 1,589 (7.5) 31,901 29,100 0.54 0.47 1.10 16,640 20,648 (48.6) 19,221 (45.2) 2,649 (6.2) 42,518 39,940 0.53 0.49 1.10 17,888 71,588 71,518 (18.4) 1,233 (2.7) 45,232 44,738 0.16 0.54 0.47 1.10 17,888 71,550 (33.1) 23,138 (54.5) 3,573 (8.4) 42,461 59,729 0.31 0.45 0.87 1.10 17,888 71,550 (33.1) 23,138 (54.5) 3,573 (8.4) 42,461 59,729 0.31 0.45 0.84 1.10 12,138 (54.5) 3,573 (6.7) 63,436 56,422 0.42 0.63 1.12 1.12 1.18 (54.5) 3,573 (6.5) 3,573 (6.7) 63,436 56,422 0.42 0.63 1.12 1.12 1.18 (54.5) 3,573 (6.0) 5,881 5.744 0.40 0.58 1.10 1.12 1.13 (6.1) 3,130 (55.2) 3,125 (6.0) 59,881 5.744 0.40 0.58 1.10 1.12 1.13 (6.1) 17,852 (6.0) 59,881 5.744 0.40 0.58 1.10 1.12 1.13 (6.1) 17,852 (6.0) 1	1961	9,420	8,476	(48.4)	6,773	(38.6)	2,277	(13.0)	17,526	17,773	0.48	0.38	0.99	0.87	0.69	1.86
12,523   9,490   (44.1)   10,419   (48.5)   1,589   (7.4)   21,498   24,572   0.38   0.42   0.87     12,775   15,590   (48.4)   13,515   (42.4)   2,793   (8.7)   31,898   26,619   0.59   0.51   1.20     15,640   21,559   (48.6)   19,221   (45.2)   2,649   (6.2)   31,901   29,100   0.54   0.47   1.10     16,640   21,568   (48.6)   19,221   (45.2)   2,649   (6.2)   42,518   38,940   0.53   0.49   1.09     17,588   7,153   (15.8)   36,846   (81.4)   1,233   (2.7)   45,232   44,738   0.16   0.82   1.01     17,588   7,153   (15.8)   36,846   (81.4)   1,233   (2.7)   45,232   44,738   0.16   0.82   1.01     21,186   23,551   (37.1)   23,138   (54.5)   3,256   (7.7)   42,477   48,746   0.37   0.44   0.88   1.12     21,186   15,766   (37.1)   23,455   (55.2)   3,256   (7.7)   42,477   48,746   0.37   0.45   0.84     21,186   15,766   (37.1)   23,455   (55.2)   3,256   (7.7)   42,477   48,746   0.37   0.48   0.87     21,186   15,766   (37.1)   23,455   (55.2)   3,256   (7.7)   42,477   48,746   0.37   0.48   0.84     21,187   20,340   (37.2)   46,651   (57.2)   4,567   (5.6)   81,538   72,732   0.42   0.64   1.12     21,384   7,509   (34.5)   12,138   (55.7)   2,131   (9.8)   21,778   28,767   0.26   0.42   0.75     21,374   11,366   (37.8)   6,955   (56.0)   960   (4.8)   20,395   21,244   0.25   0.44   0.75     22,117   6,780   (33.2)   12,477   (32.4)   44,288   34,530   0.23   0.44   0.75     23,117   8,819   (36.9)   14,156   (59.3)   894   (3.7)   23,869   30,312   0.29   0.47   0.79     24,831   15,811   (34.9)   28,068   (61.9)   1,447   (3.2)   45,356   51,726   0.87   1.08   1.04     24,831   15,811   (34.9)   28,068   (61.9)   1,447   (3.2)   44,288   0.84   0.35   0.38   0.34   0.34     24,831   15,811   (34.9)   28,068   (61.9)   1,447   (3.2)   44,288   0.84   0.38   0.38   0.34   0.38   0.35   0.34   0.34,419   0.34,919   0.38   0.38   0.39   0.39   0.31   0.35   0.35   0.	1968	13,061	17,048	(52.6)	12,604	(38.9)	2,762	(8.5)	32,414	26,537	0.64	0.47	1.22	1.30	96.0	2.48
12,775 15,590 (48.9) 13,515 (42.4) 2,793 (8.7) 31,898 26,619 0.59 0.51 1.20 13,363 15,759 (49.4) 13,749 (43.1) 2,393 (7.5) 31,901 29,100 0.54 0.47 1.10 16,640 20,648 (48.6) 19,221 2,642 (6.2) 2,100 0.53 0.49 1.09 1.588 7,153 (15.8) 36,846 (48.6) 19,221 2,642 (6.2) 2,100 0.53 0.49 1.09 1.7588 7,153 (15.8) 36,846 (48.6) 19,223 44,739 0.15 0.82 1.03 21,920 24,561 (39.3) 32,236 (51.6) 5,642 (9.0) 62,439 55,258 0.44 0.58 1.13 20,102 15,750 (37.1) 23,138 (54.5) 3,573 (8.4) 42,471 50,579 0.31 0.45 0.84 21,186 23,551 (37.1) 23,455 (55.2) 3,573 (6.7) 63,436 56,422 0.42 0.63 1.12 21,993 23,166 (37.1) 23,455 (55.2) 3,525 (6.0) 63,4876 0.30 0.31 0.45 0.87 1.13 1,186 (37.2) 46,651 (57.2) 4,255 (6.0) 59,851 57,404 0.40 0.40 0.58 1.04 1.12 21,993 23,166 (37.1) 27,588 (60.6) 2,477 (5.4) 45,522 49,899 0.31 0.55 0.51 14,329 8,557 (30.7) 17,852 (64.0) 1,485 (5.3) 21,778 (3.9) 23,166 (37.1) 17,852 (64.0) 1,485 (5.3) 21,778 (3.9) 0.31 0.55 0.25 0.81 1.23 1.244 11,366 (37.2) 17,852 (56.4) 1,465 (37.2) 2,131 (34.9) 13,416 (58.1) 980 (4.2) 23,09 31,29 0.28 0.29 0.47 0.70 1.44 11,566 (37.2) 13,416 (58.1) 980 (4.2) 23,90 31,20 0.28 0.49 0.87 11,511 (5.7) 13,416 (58.1) 980 (4.2) 23,09 31,29 0.28 0.49 0.28 0.49 0.87 11,511 (5.7) 13,416 (58.1) 980 (4.2) 23,90 31,20 0.28 0.49 0.70 0.70 11,511 (5.7) 13,416 (58.1) 980 (4.2) 23,90 31,20 0.28 0.49 0.70 0.70 0.70 11,511 (5.7) 13,416 (58.1) 980 (4.2) 23,90 31,20 0.28 0.49 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.7	6961	12,523	9,490	(44.1)	10,419	(48.5)	1,589	(7.4)	21,498	24,572	0.38	0.42	0.87	97.0	0.83	1.72
13,363   15,759   (49.4)   13,749   (43.1)   2,393   (7.5)   31,901   29,100   0.54   0.47   1.10     16,640   20,648   (46.6)   19,221   (45.2)   2,649   (6.2)   42,518   38,940   0.53   0.49   1.09     17,580   24,561   (39.3)   32,286   (31.6)   3,573   (3.4)   24,761   50,579   0.31   0.45   0.87     21,186   23,551   (37.1)   23,138   (54.5)   3,573   (8.4)   42,461   50,579   0.31   0.45   0.84     19,188   15,766   (37.1)   23,138   (55.2)   4,225   (6.7)   63,436   56,422   0.42   0.63   1.12     19,188   15,766   (37.1)   23,485   (55.2)   3,256   (7.7)   42,471   48,746   0.40   0.49   0.87     19,511   15,457   (34.0)   27,588   (60.6)   2,477   (5.4)   45,522   49,899   0.31   0.58   1.04     19,511   15,457   (34.0)   27,588   (60.6)   2,477   (5.4)   45,522   49,899   0.31   0.55   0.91     14,329   8,557   (30.7)   17,882   (40.0)   1,485   (5.3)   27,894   34,305   0.25   0.42   0.75     14,329   8,557   (30.7)   17,882   (40.0)   1,485   (5.3)   20,088   34,305   0.25   0.44   0.40     11,366   (37.2)   16,955   (54.0)   1,778   (5.9)   30,088   34,530   0.28   0.44   0.75     12,117   8,819   (36.9)   12,188   (50.1)   1,447   (3.2)   23,097   31,290   0.28   0.44   0.75     14,831   15,811   (34.9)   28,068   (61.9)   1,447   (3.2)   23,097   31,290   0.28   0.47   0.79     16,947   19,100   (35.7)   31,556   (58.9)   2,906   (5.4)   23,097   31,290   0.28   0.47   0.79     16,947   19,100   (35.7)   31,556   (58.9)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252   (38.5)   18,952   (55.1)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252   (38.5)   18,952   (55.1)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252   (38.5)   18,952   (55.1)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252   (38.5)   18,952   (55.1)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252   (38.5)   18,952   (55.1)   2,215   (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252	1970	12,775	15,590	(48.9)	13,515	(42.4)	2,793	(8.7)	31,898	26,619	0.59	0.51	1.20	1.22	1.06	2.50
16,640   20,648   (48.6)   19,221   (45.2)   2,649   (6.2)   42,518   38,940   0.53   0.49   1.09     17,588	1971	13,363	15,759	(49.4)	13,749	(43.1)	2,393	(7.5)	31,901	29,100	0.54	0.47	1.10	1.18	1.03	2.39
17,588         7,153         (15.8)         36,846         (81.4)         1,233         (2.7)         45,232         44,738         0.16         0.82         1.01           21,920         24,561         (39.3)         3,573         (5.4)         65,439         55,256         0.44         0.58         1.13           21,920         24,561         (37.1)         23,188         (34.5)         3,573         (6.7)         62,439         55,256         0.44         0.58         1.13           21,186         23,551         (37.1)         23,486         (55.2)         3,256         (7.7)         42,461         6.7         0.42         0.42         0.48         0.81           25,318         30,340         (37.2)         46,651         (5.2)         3,256         (7.7)         42,477         48,476         0.31         0.42         0.81           25,318         30,340         (37.2)         46,651         (5.2)         3,256         (7.7)         42,461         0.37         0.48         0.87           19,511         13,667         (37.2)         4,567         (5.6)         81,582         49,492         0.42         0.42         0.42         0.81         1.12	1972	16,640	20,648	(48.6)	19,221	(45.2)	2,649	(6.2)	42,518	38,940	0.53	0.49	1.09	1.24	1.16	2.56
21,920         24,561         (39.3)         32,236         (51.6)         5,642         (9.0)         62,439         55,258         0.44         0.58         1.13           20,102         15,750         (37.1)         23,138         (54.5)         3,573         (8.4)         42,461         50,579         0.31         0.45         0.64           21,186         23,551         (37.1)         23,456         (55.2)         3,256         (7.7)         42,477         48,746         0.37         0.42         0.68           25,318         15,766         (37.1)         23,456         (55.2)         3,256         (7.7)         42,477         48,746         0.40         0.42         0.87           21,933         23,166         (38.7)         3,467         (5.6)         81,582         49,899         0.31         0.42         0.87           19,511         15,467         (3.40)         27,588         (60.6)         2,477         (5.4)         45,522         49,899         0.31         0.42         0.87           12,384         7,307         17,485         (64.0)         1,485         (5.3)         20,396         1.22         49,899         0.31         0.42         0.75	1973	17,588	7,153	(15.8)	36,846	(81.4)	1,233	(2.7)	45,232	44,738	0.16	0.82	1.01	0.41	2.09	2.57
20,102         15,750         (37.1)         23,138         (54.5)         3,573         (8.4)         42,461         50,579         0.31         0.45         0.84           21,186         23,551         (37.1)         35,600         (56.2)         4,225         (6.7)         63,436         56,422         0.42         0.63         1.12           19,188         15,766         (37.1)         23,455         (55.2)         4,567         (5.6)         81,558         72,732         0.42         0.64         1.12           25,318         30,340         (37.2)         4,567         (5.6)         81,558         72,732         0.42         0.64         1.12           21,991         15,457         (34.5)         3,625         (6.0)         59,851         57,404         0.40         0.58         1.10           19,311         15,457         (34.5)         1,485         (5.3)         34,355         0.25         0.42         0.65           12,384         7,509         (34.5)         12,138         (55.7)         2,131         (9.8)         21,778         28,767         0.26         0.81           11,511         6,780         (35.6)         15,467         (5.0)         30,	1974	21,920	24,561	(39.3)	32,236	(51.6)	5,642	(0.6)	62,439	55,258	0.44	0.58	1.13	1.12	1.47	2.85
21,186         25,551         (37.1)         35,660         (56.2)         4,225         (6.7)         63,436         56,422         0.42         0.63         1.12           19,188         15,766         (37.1)         23,455         (55.2)         3,256         (7.7)         42,477         48,746         0.37         0.42         0.64         1.12           25,318         30,340         (37.2)         4,657         (5.6)         81,558         72,732         0.42         0.64         1.12           21,993         23,156         (38.7)         33,070         (55.3)         3,625         (6.0)         59,851         57,404         0.40         0.58         1.04           19,511         15,457         (34.0)         27,477         (5.4)         45,522         49,899         0.31         0.55         0.91           12,344         11,569         (36.0)         1,485         (5.3)         27,844         0.25         0.36           13,414         11,366         (37.2)         12,647         (62.0)         1,767         (5.9)         30,088         34,530         0.25         0.31           11,511         6,780         (33.2)         12,647         (62.0)	975	20,102	15,750	(37.1)	23,138	(54.5)	3,573	(8.4)	42,461	50,579	0.31	0.45	0.84	0.78	1.15	2.11
19,188       15,766       (37.1)       23,455       (55.2)       3,256       (7.7)       42,477       48,746       0.37       0.48       0.87         25,318       30,340       (37.2)       46,651       (57.2)       4,567       (5.6)       81,558       72,732       0.42       0.64       1.12         21,993       23,156       (38.7)       33,070       (55.3)       3,625       (6.0)       59,851       57,404       0.40       0.58       1.04         19,511       15,457       (34.0)       27,588       (60.6)       2,477       (5.4)       45,522       49,899       0.31       0.55       0.91         14,329       8,557       (30.7)       17,862       (64.0)       1,485       (5.3)       27,894       34,305       0.25       0.81         11,384       7,509       (34.5)       12,787       (5.9)       30,088       34,530       0.33       0.49       0.75         11,511       6,780       (35.7)       13,416       (58.1)       1,747       (5.9)       30,088       34,530       0.25       0.42       0.75         12,117       8,819       (36.2)       14,47       (3.7)       23,699       31,290       0.38<	976	21,186	23,551	(37.1)	35,660	(56.2)	4,225	(6.7)	63,436	56,422	0.42	0.63	1.12	<b>.</b>	1.68	2.99
25,318 30,340 (37.2) 46,651 (57.2) 4,567 (5.6) 81,558 72,732 0.42 0.64 1.12 21,993 23,156 (38.7) 33,070 (55.3) 3,625 (6.0) 59,851 57,404 0.40 0.58 1.04 19,511 15,457 (34.0) 27,588 (60.6) 2,477 (5.4) 45,522 49,899 0.31 0.55 0.91 14,329 8,557 (30.7) 17,852 (64.0) 1,485 (5.3) 27,894 34,305 0.25 0.52 0.81 12,384 7,509 (34.5) 12,138 (55.7) 2,131 (9.8) 21,778 28,767 0.26 0.42 0.76 11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 12,147 11,366 (33.2) 14,156 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,811 (34.9) 28,066 (61.9) 1,447 (3.2) 45,352 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 16,947 19,100 (35.7) 26,56 (58.9) 2,906 (5.4) 34,419 34,919 0.38 0.54 0.99	776	19,188		(37.1)	23,455	(55.2)	3,256	(7.7)	42,477	48,746	0.37	0.48	0.87	0.82	1.22	2.21
21,993 23,156 (38.7) 33,070 (55.3) 3,625 (6.0) 59,851 57,404 0.40 0.58 1.04 19,511 15,457 (34.0) 27,588 (60.6) 2,477 (5.4) 45,522 49,899 0.31 0.55 0.91 14,329 8,557 (30.7) 17,852 (64.0) 1,485 (5.3) 27,894 34,305 0.25 0.52 0.81 12,384 7,509 (34.5) 12,138 (55.7) 2,131 (9.8) 21,778 28,767 0.26 0.42 0.76 13,414 11,366 (37.8) 16,955 (56.4) 1,767 (5.9) 30,088 34,530 0.33 0.49 0.87 11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 12,646 8,701 (37.7) 13,416 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.09 16,947 19,100 (35.7) 2,18,952 (55.3) 2,215 (6.4) 34,419 34,919 0.38 0.54 0.99	978	25,318	30,340	(37.2)	46,653	(57.2)	4,567	(9.9)	81,558	72,732	0.42	0.64	1.12	1.20	1.84	3.22
19,511   15,457 (34.0)   27,588 (60.6)   2,477 (5.4)   45,522   49,899   0.31   0.55   0.91     14,329   8,557 (30.7)   17,852 (64.0)   1,485 (5.3)   27,894   34,305   0.25   0.25   0.52     12,384   7,509 (34.5)   12,138 (55.7)   2,131   (9.8)   21,778   28,767   0.26   0.42   0.76     13,414   11,366 (37.8)   16,955 (56.4)   1,767 (5.9)   30,088   34,530   0.33   0.49   0.87     15,511   6,780 (33.2)   12,647 (62.0)   969 (4.8)   20,396   27,244   0.25   0.46   0.75     12,646   8,701 (37.7)   13,416 (58.1)   980 (4.2)   23,097   31,290   0.28   0.43   0.74     12,117   8,819 (36.9)   14,156 (59.3)   894 (3.7)   23,869   30,312   0.29   0.47   0.79     14,831   15,811 (34.9)   28,068 (61.9)   1,447 (3.2)   45,326   41,428   0.87   1.04   1.09     16,947   19,100 (35.7)   31,556 (58.9)   2,906 (5.4)   53,562   51,726   0.87   1.08   1.04     14,831   350,403 (38.3)   505,353 (55.3)   58,274 (6.4)   34,419   34,919   0.38   0.54   0.99     14,657   13,252 (38.5)   18,952 (55.1)   2,215 (6.4)   34,419   34,919   0.38   0.54   0.99	979	21,993	23,156	(38.7)	33,070	(55.3)	3,625	(6.0)	59,851	57,404	0.40	0.58	1.04	1.05	1.50	2.61
14,329         8,557         (30.7)         17,852         (64.0)         1,485         (5.3)         27,894         34,305         0.25         0.52         0.81           12,384         7,509         (34.5)         12,138         (55.7)         2,131         (9.8)         21,778         28,767         0.26         0.42         0.76           13,414         11,366         (37.8)         16,955         (56.4)         1,767         (5.9)         30,088         34,530         0.33         0.49         0.87           11,511         6,780         (33.2)         12,647         (62.0)         969         (4.8)         20,396         27,244         0.25         0.46         0.75           12,646         8,701         (37.7)         13,416         (58.1)         980         (4.2)         23,097         31,290         0.28         0.43         0.74           12,117         8,819         (36.9)         14,447         (3.7)         23,869         30,312         0.29         0.47         0.79           16,947         19,100         (35.7)         31,556         (58.9)         2,906         (5.4)         53,562         51,726         0.87         1.04           16,947 </td <td>980</td> <td>19,511</td> <td>15,457</td> <td>(34.0)</td> <td>27,588</td> <td>(9.09)</td> <td>2,477</td> <td>(5.4)</td> <td>45,522</td> <td>49,899</td> <td>0.31</td> <td>0.55</td> <td>0.91</td> <td>0.79</td> <td>1.41</td> <td>2.33</td>	980	19,511	15,457	(34.0)	27,588	(9.09)	2,477	(5.4)	45,522	49,899	0.31	0.55	0.91	0.79	1.41	2.33
12,384 7,509 (34.5) 12,138 (55.7) 2,131 (9.8) 21,778 28,767 0.26 0.42 0.76 13,414 11,366 (37.8) 16,955 (56.4) 1,767 (5.9) 30,088 34,530 0.33 0.49 0.87 11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 12,646 8,701 (37.7) 13,416 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	186	14,329	8,557	(30.7)	17,852	(64.0)	1,485	(2.3)	27,894	34,305	0.25	0.52	0.81	0.60	1.25	1.95
13,414 11,366 (37.8) 16,955 (56.4) 1,767 (5.9) 30,088 34,530 0.33 0.49 0.87 11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 12,646 8,701 (37.7) 13,416 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.3) 58,274 (6.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	982	12,384	7,509	(34.5)	12,138	(55.7)	2,131	(8.6)	21,778	28,767	0.26	0.45	0.76	09.0	96.0	1.76
11,511 6,780 (33.2) 12,647 (62.0) 969 (4.8) 20,396 27,244 0.25 0.46 0.75 12,646 8,701 (37.7) 13,416 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.3) 58,274 (6.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	983	13,414	11,366	(37.8)	16,955	(56.4)	1,767	(2.9)	30,088	34,530	0.33	0.49	0.87	0.84	1.26	2.24
12,646 8,701 (37.7) 13,416 (58.1) 980 (4.2) 23,097 31,290 0.28 0.43 0.74 12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	984	11,511	6,780	(33.2)	12,647	(62.0)	696	(4.8)	20,396	27,244	0.25	0.46	0.75	0.59	1.10	1.77
12,117 8,819 (36.9) 14,156 (59.3) 894 (3.7) 23,869 30,312 0.29 0.47 0.79 14,831 15,811 (34.9) 28,068 (61.9) 1,447 (3.2) 45,326 41,428 0.82 1.04 1.09 16,947 19,100 (35.7) 31,556 (58.9) 2,906 (5.4) 53,562 51,726 0.87 1.08 1.04 1.09 383,367 350,403 (38.3) 505,353 (55.3) 58,274 (6.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	985	12,646	8,701	(37.7)	13,416	(58.1)	980	(4.2)	23,097	31,290	0.28	0.43	0.74	0.69	1.06	1.83
14,831     15,811     (34.9)     28,068     (61.9)     1,447     (3.2)     45,326     41,428     0.82     1.04     1.09       16,947     19,100     (35.7)     31,556     (58.9)     2,906     (5.4)     53,562     51,726     0.87     1.08     1.04       ) 383,367     350,403     (38.3)     505,353     (55.3)     58,274     (6.4)     914,030     924,691     —     —     —       ) 14,657     13,252     (38.5)     18,952     (55.1)     2,215     (6.4)     34,419     34,919     0.38     0.54     0.99	986	12,117	8,819	(36.9)	14,156	(59.3)	894	(3.7)	23,869	30,312	0.29	0.47	0.79	0.73	1.17	1.97
16,947     19,100     (35.7)     31,556     (58.9)     2,906     (5.4)     53,562     51,726     0.87     1.08     1.04       13,367     350,403     (38.3)     505,353     (55.3)     58,274     (6.4)     914,030     924,691     —     —     —       14,657     13,252     (38.5)     18,952     (55.1)     2,215     (6.4)     34,419     34,919     0.38     0.54     0.99	987	14,831	15,811		28,068	(61.9)	1,447	(3.2)	45,326	41,428	0.85	1.04	1.09	1.07	1.89	3.06
) 383,367 350,403 (38.3) 505,353 (55.3) 58,274 (6.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	988	16,947	19,100	(35.7)		(58.9)	2,906	(5.4)	53,562	51,726	0.87	1.08	1.04	3.00	3.40	3.16
) 383,367 350,403 (38.3) 505,353 (55.3) 58,274 (6.4) 914,030 924,691 — — — — — — — — — — — — — — — — — — —	OTALS						ı							: 	·	
) 14,657 13,252 (38.5) 18,952 (55.1) 2,215 (6.4) 34,419 34,919 0.38 0.54 0.99	1963-88)	383,367	350,403		605,353	(55.3)	58,274	(6.4)	914,030	924,691	I	ł	1	1	1	1
99.0 4.35 (30.5) (30.5) (35.1) (1.15 (4.4) 34,419 (4.5) (35.0) (6.05)	VERAGES	7 7 7 6	616		0.00	£ 49	1,00	•				i	9	6	6	c C
	1903-8/)	14,05/	767'51		766,81	(32 (3.1)	2,215	(6.4)	34,419	34,919	0.38	0.54	66.0	96.9	62.1	2.35

Table 17. Blue and ruffed grouse harvest statistics and hunt regulations, 1963-1988.

	Total	Total	Total							
	Ruffed	Blue	Forest	Total	Total				Age	Aggregate
	Grouse	Grouse	Grouse	Hunter	Hunter Days	Se	Season Length		, ag	Bag Limits
Year	Harvest	Harvest	Harvest	Afield	Afield	0pen	Close	Davs	Daily	Possession
1963	5,470	7,372	13,608	7,425	12,313	٠.	٠.	n n c	4	æ
1964	5,354	6,685	12,691	6,487	10,566	9/56	10.16	21	4	- ∞
1965	3,225	4,924	8,669	6,005	10,504	9/25	10/22	78	4	· «
1966	996'9	4,659	12,321	6,683	12,387	9/24	10/21	78	4	· œ
1961	8,476	6,773	17,526	9,420	17,773	9/23	10/31	39	4	- α
1968	17,048	12,604	32,414	13,061	26,537	9/58	10/29	32	4	<b>6</b> 0
1969	9,490	10,419	21,498	12,523	24,572	72/6	11/2	37	4	- α
1970	15,590	13,515	31,898	12,775	26,619	9/56	11/6	42	4	œ
1971	15,759	13,749	31,901	13,363	29,100	9/25	11/30	29	4	• ••
1972	20,648	19,221	42,518	16,640	38,940	9/23	11/30	69	4	· «
1973	7,153	36,846	45,232	17,588	44,738	9/22	11/30	70	4	<b>6</b> 0
1974	24,561	32,236	62,439	21,920	55,258	9/58	11/30	4	4	• •
1975	15,750	23,138	42,461	20,102	50,579	9/50	11/30	72	4	60
9261	23,551	35,660	63,436	21,186	56,422	9/18	11/30	74	4	<b>e</b>
1977	15,766	23,455	42,477	19,188	48,746	71/6	11/30	75	4	- α
1978	30,340	46,651	81,558	25,318	72,732	9/16	11/30	76	4	00
1979	23,156	33,070	59,851	21,993	57,404	9/15	11/30	11	4	æ
1980	15,457	27,588	45,522	19,511	49,899	9/20	11/30	72	4	8
198)	8,557	17,852	27,894	14,329	34,305	9/19	11/30	73	4	00
1982	7,509	12,138	21,778	12,384	28,767	81/6	11/30	74	4	00
1983	11,366	16,955	30,088	13,414	34,530	71/6	11/30	75	4	· &
1984	6,780	12,647	20,396	11,511	27,244	9/15	11/30	11	4	œ
1985	8,701	13,416	23,097	12,646	31,290	9/14*	11/30	78	4	· 00
1986	8,819	14,156	23,869	711,21	30,312	9/13	11/30	79	4	· 60
1987	15,811	28,068	45,326	14,831	41,428	9/12	11/30	8	4	· &
1988	19,100	31,556	53,562	16,947	51,726	11/6	11/30	82	4	80

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

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

Table 18. Forest grouse field bag check summary, 1988.

Region and Total County Parties Northern Region Box Elder 3 Cache 156 Davis 17 Morgan Rich 72 Summit 34 Weber 36 Central Region Juab Salt Lake 1 Sanpete 1 Tooele 1	10tal Hunters 293 31 31 560 560 560 560 560 560 560 560 560 560	ALL HUNIS Total Hours 34 1,209 92  591 4 2,144 2,144	Fotal Birds 17 332 14	Birds/ 100 Hr 50	Total Complete Hunts 3	Total Munters	ers Hours 6 34	Total Birds 17	Birds/ 100 Hr 50	Birds/ Hunter 2.83
		11,209 92 92 92 14 2,144	Birds 17 332 14	100 Hr 50	Hunts 3	Hunters 6	Hours 34	Birds 17	100 Hr 50	Hunter 2.83
		34 1,209 92 92  593 4 2,144 2,144	332	20	3	9	34	17	20	2.83
S 2	293 31 159 66 66 66 66 7 7 8	· · · 이 이 디	332	20	3	9	34	17	20	2.83
	293 31 159 66 66 66 75 75 75 75 75 75 75 75 75 75 75 75 75	જું જ જ <u>ા</u> ન્	332	2	151	•	5	328	,	-
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	88 «	351	68	6	40	92	320	ខ	₹	0.00
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o TLOU	2	2	5	2	•	۱ ا	1	ł	ł	ł
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Millard	7	4	•	52	_	7	*	•	3	3
Piute	1	1	1	ł	ł	1	} '	¦	1 ;	1 8
Sevier	52	45	52	20		_	7	4	200	4.00
Washington	ł	ł	1	ł	1	1	}	1	1	1
Wayne	}	1	1	ł	1	1	1	1	١	1
REGIONAL TOTALS 20	45	100	65	65	7	=	21	4	130	3.64
qion										
	71	22	12	55	_	4	<b>60</b>	m	38	1.50
a	7	32	2	9	ŀ	!	1	1		1
Hintaba 7	21	4	9	24	2	71	34	8	24	0.47
TOTALS	45	95	24	25	9	12	42	=	56	0.52
gion										
Carbon	. 1	;	1	1	l	1	}	1	ł	1
Emery	1	}	ł	1	1	1	١	1	}	1
Grand	1	1	1	ł	1	}	1	!	1	1
San Juan	ł	!	}	ł	}	+		1	1	1
REGIONAL TOTALS					1	1	i			1
CTATE TOTALS	346	111.6	667	25	324	653	2.456	919	25	0.94
	0+/			2						

Table 19. Forest grouse hunter success trend determined by field bag checks, 1983-88.

	16	1983	19	1984	19	1985	19	1986	1987	87	1988	ec
Region and	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/
County	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
Northern Region												
Box Elder	13	0.40	4	0.10	ł	}	32	1.42	39	3.50	20	2.83
Cache	10	0.41	5	0.56	15	0.70	15	0.57	17	0.74	78	2.15
Davis	12	0.83	18	19.0	1	ł		0.0	91	0.56	92	0.50
Morgan	53	2.00	ŀ	ł	1	ł	ł	ŀ	1	1	!	}
Rich	7	0.0	13	0.57	9	0.23	9	0.5	92	0.44	7	0 53
Summit	!	}	ł	ł	1	ł	200	2.00	: 1	: 1	:	; ;
Weber	7	0.28	2	0.08	56	0.86	2	0.38	29	0.93	23	7
REGIONAL TOTALS	11	0.45	13	0.47	14	0.58	14	0.50	19	0.71	2 2	8
Central Region												3
Juab	1	1	22	0.59	ł	ł	ł	1	ŀ	;	108	3 25
Salt Lake	}	ł	ł	ł	ł	ł	!	ł	ł	ł	}	;
Sanpete	ł	ł	11	0.50	ł		1	ł	1	ł	· - {	1
Tooele	1	ł	ļ	: 1	46	1.50	ŀ	ŀ	7	נצ	ופפנ	ا د
Utah	15	0.62	σ'n	0.39	4	0.13	10	0.39	2	5 1	5 5	00.0
Wasatch	15	0.70	1	ł	ł	1	: 1		ı		3	9
REGIONAL TOTALS	5	0.63	=	0.43	7	0.27	٩	0.30	1	0 51	36	
Southern Region												3
Beaver	1	ŀ	ł	}	ł	ł	1	1	1	1	ı	ł
Garfield	6	0.33	I	ł	2	0.33	52	1.00	ł	1	ļ	ļ
Iron	!	1	ŀ	l	1	ł	ŀ	}	ļ	i	200	3,75
Kane	ŀ	1	1	ł	ł	1	ſ	i	ŀ	ł	1	! !
Millard	m	14	68	1.33	0	0.00	91	09.0	82	2.00	150	3.00
Piute	1	1	ŀ	ł	1	I	1	ł	ł	ł	1	1
Sevier	1	ł	1	ł	22	1.50	1	1	ł	ł	200	4.00
Washington	1	;	ł	1	1	1	1	ł	1	ł	ł	1
Wayne	1	1	1	ł	ł	·	1	1	-	ł	1	ł
REGIONAL TOTALS	2	0.20	89	1.33	10	0.40	17	0.63	82	2.00	190	3.64
Northeastern Region												
Daggett	સ્ટ	1.75	ł	1	20	1.10	1	1	4	1.20	38	1.50
Duchesne	ŀ	ł	<b>5</b> 2	1.15	0	0.00	91	0.55	33	1.00	l	; ;
Uintah	7	0.59	59	1.25	32	1.22	12	0.43	53	1.46	24	0.47
REGIONAL TOTALS	24	0.92	28	1.22	25	1.08	13	0.45	20	1.37	26	0.52
Southeastern Region												
Carbon	ŀ	ł	<b>!</b>	ł	39	1.17	i	ł	ł	I	ŀ	ł
Emery	1	1	ł	ł	133	1.33	333	2.50	1	ł	1	i
Grand	00L	2.00	1	1	22	1.00	20	0.50	1	ł	ł	ł
San Juan	1	1	1		1	!	33	1.00	}	;	ł	ł
REGIONAL TOTALS	100	2.00	1	ì	52	1.20	54	1.40	ł	1		
STATE TOTALS	14	0.55	14	0.54	14	0.57	14	0.50	18	0.75	25	0.94
											,	,

Table 20. Sex and age composition of harvested blue grouse, 1988.

Region and	Sample		Adu]			Youn		Young/	Young/
County	Size	M	F	Total	M	F	Total*	100 Adults	100 Hens
Northern Region									
Box Elder									
Cache									
Davis								<del></del>	
Morgan									<del></del>
Rich							<del></del>		
Summit									<del></del>
Weber								<del></del> •	
REGIONAL TOTALS			<b>-</b> -						
Central Region									
Juab									
Salt Lake									
Sanpete				-			<b></b> -		
Tooele									
Utah	98	23	13	36	12	50	62	172	477
Wasatch									
REGIONAL TOTALS	98	23	13	36	12	50	62	172	477
Southern Region	-								
Beaver									
Garfield									
Iron									
Kane									
Millard									
Piute									
Sevier	<del></del>								
Washington									
Wayne	<del></del>							<b></b>	
REGIONAL TOTALS									
Northeastern Re	gion								
Daggett									
Duchesne								<del></del>	
Uintah									
REGIONAL TOTALS									
Southeastern Re	gion				•				
Carbon									<del></del>
Emery									
Grand	9								
San Juan			·					مند بلند	
REGIONAL TOTALS	9								
STATE TOTALS**			•						

<sup>\*</sup>Includes unclassified juveniles.
\*\*Insufficient sample size to calculate.

Table 21. Sex and age composition of harvested ruffed grouse, 1988.

Region and	Samp1e		Adu'		<del></del>	Your		Young/	Young/
County	Size	M	<u> </u>	Total	М	F	Total*	100 Adults	100 Hens
Northern Region									
Box Elder									
Cache								· <del></del>	
Davis			<b></b>						
Morgan									
Rich									
Summit									
Weber _									
REGIONAL TOTALS									
Central Region									
Juab									
Salt Lake									
Sanpete									
Tooele									
Utah									
Wasatch									~~
REGIONAL TOTALS									
Southern Region									
Beaver									
Garfield									
Iron									
Kane									
Millard	·								
Piute									
Sevier									
Washington									
Wayne		~-							
REGIONAL TOTALS									
Northeastern Re									
Daggett									
Duchesne									
Uintah									
REGIONAL TOTALS							····		
Southeastern Re	•								
Carbon	<del></del>								
Emery									
Grand									
Şan Juan									
REGIONAL TOTALS									
STATE TOTALS									
2.7112 1917124									

<sup>\*</sup>Includes unclassified juveniles.

# QUAIL

## **SUMMARY**

The 1988 breeding populations of California and Gambel's quail were higher than in 1987, but were still below average.

Production of Gambel's quail decreased from 1987, and was below average.

Statewide harvest statistics, when compared to 1987, showed an increase in total hunters and total harvest. Hunter success (birds per hunter-day) remained below average statewide. There was a 25 percent decrease in hunter days afield and total harvest of Gambel's quail reported in Washington County.

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. The 25-year average young/100 adults index is 290/100 which is about what is needed for population stability. 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. Bloominton, 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).





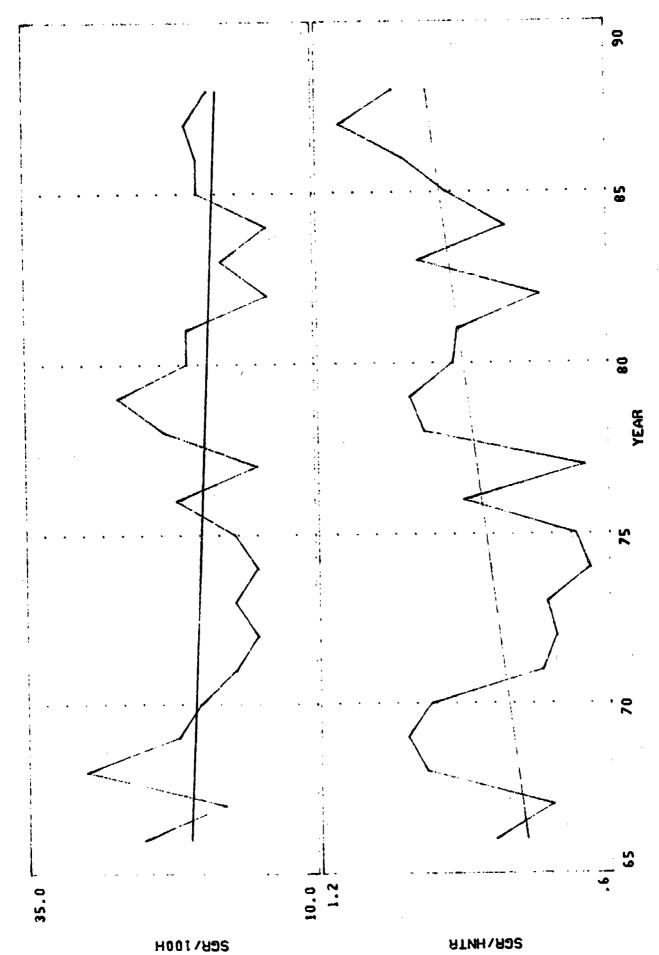


Figure 1. Statewide quail production indices, 1967-88.

-126-

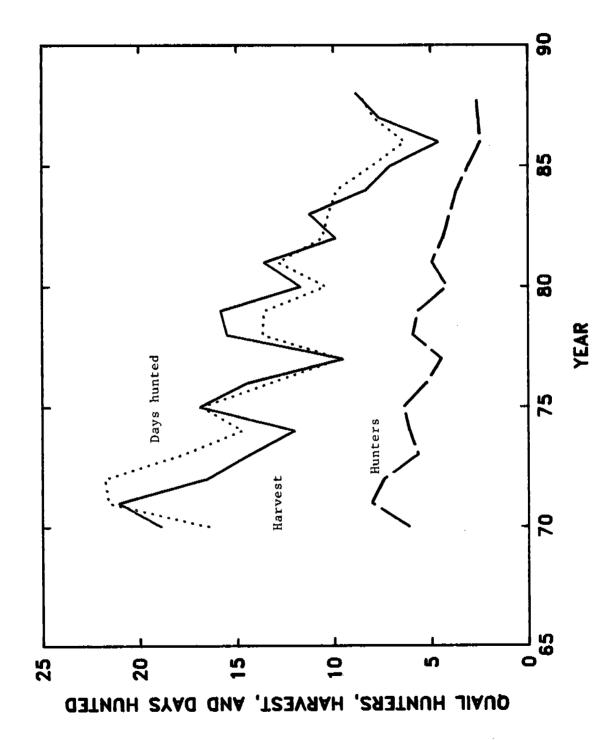


Figure 2. Statewide trend of quail harvest statistics.

#### Brood Counts

Results of the annual random brood counts for 1988 are shown in Table 1 of this section. Long-term trends of young-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 1988 compared to 1987 and the previous 10-year average follow:

	<u>1988</u>	<u>Percent</u> 1987	change from Average
Total quail observed	451	-25	17
Young per 100 adults	220	-20	-23
Mean brood size	7.25	+94	∔2
Quail observed per 100 hours	622	-69	-25
Total hours effort	54.0	+71	-33

Harvest statistics for 1987 indicated an increased breeding population of quail statewide, especially in Washington Gounty where hunter success rates increased 83 percent from the previous year. Apparently, there was good overwinter survival.

Brood counts indicated lower production of both California and Gambel's quail. The production index of young per 100 adults for Gambel's quail was half what it was the previous year and was only slightly more than the adults, indicating production which barely replaced the adult population. Production declined from 1987 and was below average.

Temperatures were above average and precipitation below average in the Dixie climatic subdivision January through March. Precipitation was well above average in April. Dry and warm weather prevailed thereafter. This should have fostered good brood survival.

### Harvest

Results of the annual hunter questionnaire for 1988 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 1988 season to 1987 and the previous 29-year average follow:

	<u>1988</u>	<u>Percent</u> 1987	change from Average
Quail hunters Quail harvested	2,671	+5	-57
	8,849	+16	49
Hunter-days afield	8,682	+10	-44
Quail per hunter-day	1.02	+5	-7
Quail per hunter	3.31	+10	+22

Harvest for 1988 increased 16 percent from 1987 but was 49 percent below average. Since production apparently declined, this would indicate increased vulnerability of quail populations, perhaps due to drought.

In Washington County (Gambel's quail), hunter success remained the same but hunter days afield and total harvest decreased 25 percent from 1987. Only 28 percent of the statewide harvest of quail was taken in Washington County during 1988 compared to 43 percent in 1987, nearly 29 percent in 1986 and 36 percent in 1985.

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

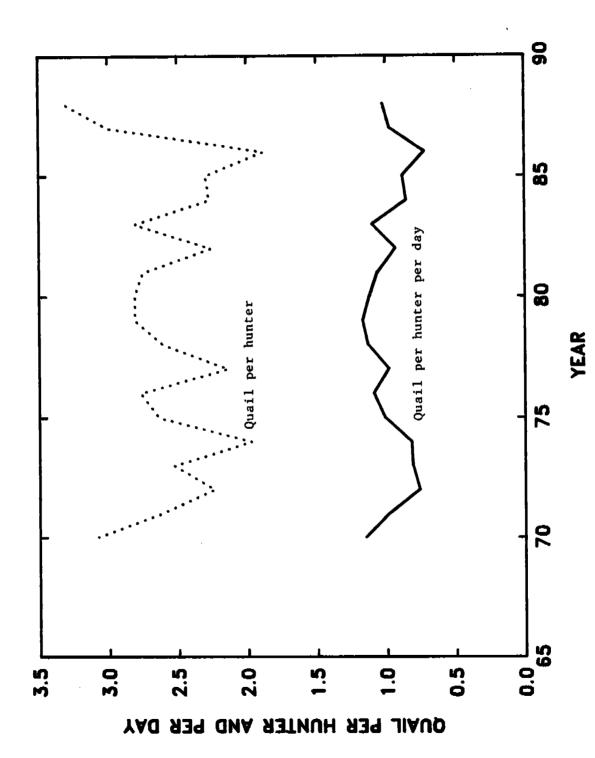


Figure 3. Statewide trend of quail hunter success rates, 1968-88.

Table 1. Quail summer inventory summary, 1988.

	0is	Distinct	بد		Mixed Yng	Yng										
Region and	ā	Broods		Mean	& Adults		Adults	Total	Total	Young/	Veh.	Ho	urs of	Hours of Effort	날	Birds/
County	*	Ad	Yng	Brood	Ad	Yng	W/o Yng	Adults	Yng	100 Ad	Miles	Veh.	Horse	Horse Walk Total	Total	100 Hr
Northern Region																
Box Elder	1	1	1	1	<b>!</b>	ł	ŀ	1	1	!	l	1	1	1		}
Cache	1	ł	ł	1	1	1	1	ł	<b>¦</b>	}	ŀ	1	1	1	ł	ł
Davis	9	80	38	6.33	0	0	σ,	11	38	224	0	4	0	-	2	1,100
Morgan	}	1	ł	1	1	!	ł	!	¦	1	1	1	1	1	1	1
Rich	1	1	1	1	1		l	1	1	ŀ	ŀ	1	ł	<b>!</b>	}	1
Summit	}	1	ł	1	1	l	l	1	1	}	I	1	ł	ł	l	ł
Weber	ţ	ł	1	1	1	ł		ł	1	1	!	1	1	1	;	1
REGIONAL TOTALS	9	80	38	6.33	0	0	6	17	38	224	0	4	0	-	5	1,100
Central Region	i I															
Juab	}	1	1	1	}	ł	1	1	1	!	ł	1	1	1	;	1
Salt Lake	1	1	1	1	1	1	1	ł	1	1	1	1	ł	ſ	1	ł
Sanpete	ł,	1	1	!	1	1	1	}	1	1	1	1	1		1	ł
Tooele	1	l	ŀ	1	1	1	}	!	1	ŀ	1	ŀ	1	1	ł	1
Utah	ł	ł	ł	1	ļ	1	<b>¦</b>	1	1	1	}	!	1	1	1	ł
Wasatch	1	1	1	1		1	1	1	1	1			1	ij	;	
REGIONAL TOTALS	1	1	1	ł	1	1	1	1	1	;	1	ł	ł	ı	1	-
Southern Region															i	
Beaver	ŀ	ł	1	1	ŀ	ļ	ł	ł	1	1	<b>!</b>	1	1	1	1	ł
Garfield	1	ł	ł	1	}	1	ł	!	1	l	}	1	ł	l	1	I
Iron	1	ł	1	1	1	1	I	1	1	1	1	1	ļ	1	ł	ŀ
Kane	1	1	1	ł	1	ł	ł	1	1	1	ł	I	I	1	1	ł
Millard	~	<b>æ</b> )	79	11.28	0	0	7	2	79	790	142	7	0	0	7	1,277
Piute	1	1	1	1		1	1	ł	ł	1	ı	1	1	1	1	;
Sevier	1	}	}	1	}	1	I	1	I	!	I	ł	1	1	!	1
Washington	=	7	2	4.64	ထ	œ	<b>ഇ</b>	47	20	126	135	15	0	∞	50	230
Wayne	1	!	1			1	1	1			1	1	1	1		
REGIONAL TOTALS	2	52	22	7.22	80	80	20	22	138	242	777	53	9	8	37	527
Northeastern Region	<b>C</b> I															
Daggett	1	ŀ	ł	1	l	!	1	;	}	1	1	I		1	1	1
Duchesne	7	က	8	9.00	æ	9	7	ဆ	24	300	8	6	1	1	0	356
Uintah	7	4	=	8.50	2	4	6	23	33	135	0	6	1	ł	3	1,800
REGIONAL TOTALS	4	-	35	8.15	2	20	=	31	52	117	96	12	4	1	12	717
Southeastern Region	<b>C</b> I															
Carbon	i	ł	ł	}	}	;	ł	1	1	1	1	!	}	ł	1	ł
Emery	1	1	1	1	1	1	1	1	ł	ŀ	1		1	1	ŀ	<b>!</b>
Grand	ł	}	!	1		1	ł	1	1	1	ļ	;	1	1	1	1
San Juan			1	1	1	1	11	1	1	1	1	1	1	ł	1	;
REGIONAL TOTALS	!		1	;	1	1		1	1	1	}	1	ł	1	1	-
STATE TOTALS	28	44	203	7.25	21	28	6	105	231	220	373	45	0	6	54	622
*Waterhole count	ţ															

Table 2. Trend of quail young per 100 adults, 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	ł	1	1	4 <del>4</del> 0	1	1	1	1	1	}	}	
Cache	1		ł	ł	1	1	!	1	1	ł	ł	
Davis	1	196	94	32	I	ł		1	1	I	224	
Horgan	l	200	1	1	1	220	1	1,050	1	1	1	
Rich	1	1	!	ł	1	1	1	ł	ł	1	1	
Summit	ł	1	1	1	1	1	ł	ł	ł	1	ł	
Weber	1	233	1	1	1	125	125	1	1	1,400	ļ	
REGIONAL TOTALS	ł	209	24	128	1	130	ļ	1,050	-	1,400	224	502
Central Region												
Juab	ł	1	1	1	ļ	ł	1	}	ł	1	{	
Salt Lake	11	256	400	19	4	4	!	1	1	1	ŀ	
Sanpete	300	1	1	1	ł	1	!	!	1	1	1	
Tooele	ł	ł	1	;	ł	1	1	1	1	ł	1	
Utah	44	240	714	100	ł	1	1	700	700	220	1	
Wasatch	1	1	1	!	-	-	!	-	1	1	1	
REGIONAL TOTALS	127	245	656	72	40	40	1	700	700	220	1	311
Southern Region												
Beaver	ł	ł	i	ł	1	ł	1	1	ł	1	ì	
Garfield	i	1	1	1	1	1	1	1	1		ł	
Iron	ł	ł	1	1	ļ	1	1	1	1	1	ł	
*Kane	;	1	1	1	1	1	1	1	1	1	I	
Millard	47	204	156	540	300	133	133	138	44	545	790	
Piute	1	1	1	ŀ	ł	ł	1	ł	ł	1	1	
Sevier	1	700	1	1	250	1	!	1	ł	1	ł	
"Washington	555	301	93	526	152	624	224	נ73	412	250	126	
"Wayne	1,250		1	550	ł	1	1	1	ł	!	ł	
REGIONAL TOTALS	317	283	114	439	162	544	213	434	456	272	242	323
<u>Northeastern Region</u>												
Daggett	ł	}	I	!	I	ł	;	1	1	1	1	
Duchesne	190	340	114	583	900	ı	ł	1	1	1	300	
Uintah	900	653	338	305	411	}	ŀ	1	l	!	135	
REGIONAL TOTALS	336	517	282	367	286	ł	1	1	t	1.	177	358
Southeastern Region												
Carbon	650	}	I	1	1	ł	ł	1	١	l	ł	
Emery	19	ł	i	1	1	ŀ	1	;	1	!	}	
Grand	1	1	1	300	ł	1	1	1	1	ł	;	
San Juan	4		9	1	1	1	!	ł	1	1	*	
REGIONAL TOTALS	88	9	1	300	-	!	!	-	+	l	1	143
STATE TOTALS	272	285	155	311	134	412	213	473	331	276	220	286

"Washington, Kane and Wayne counties, Gambel's quail; all others, California quail.

Table 3. Trend of quail mean brood size from 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	1	1	1	11.00	1		!	1	ł	1	1	
Cache	1	1	{	l	1	1	1	1	!	1	1	
Davis	1	6.75	5.00	1.33	;	;	1	1	1	1	6.33	
Morgan	}	5.00	ł	1	ł	11.00	1	10.50	1	1	1	
Rich	ļ	1	}	1	1	1	1	!	}	1	1	
Summit	1	ł	}	1	1	1	1	1	ł	}	·l	
Weber	1	1	1	ł	1	3.75	1	ı	1	14,00	!	
REGIONAL TOTALS	ł	6.40	5.00	6.85	1	5.20	1	10.50	}	14.00	6.33	7.99
Central Region												
Juab	1	1	}	1	1	1	1	ł	1	1	1	
Salt Lake	2.00	4.60	4.00	1	}	3.00	1	ł	1	1	I	
Sanpete	4.75	1	ł	1	1	}	I	ł	1	1	1	
Tooele	1	1	ł	1	1	1	}	1	1	ł	ł	
Utah	4.00	4.00	5.00	3.00	;	}	!	7.00	7.50	11.00	ł	
Wasatch	!	-	-	+	}	1	-	-	ŀ	ł	ļ	
REGIONAL TOTALS	3.44	4.43	4.50	3.00		3.00	;	7.00	7.50	11.00		5.48
Southern Region												
Beaver	1	1	1	1	1	!	1	1	1	1	ł	
Garfield	1	1	1	1	1	}	}	ł	!	ł	1	
Iron	1	1	1	1	1	1	ŀ	1	1	ł	1	
*Kane	1	!	<b>!</b>	!	1	ł	!	i	1	ŀ	1	
Millard	6.25	11.25	5.63	8.54	1	3.00	4.00	9.00	1.80	12.00	11.28	
Piute	ł	;	1	1	}	ł	1		1	1	1	
Sevier	ł	7.00	;	}	1	1	1	1	1	1	ł	
*Washington	11.80	8.51	5.22	6.42	9.00	13.50	5.09	8.43	7.85	5.59	4.64	
*Wayne	1	1	1	5.50	!	1	1	ł	1	1	1	
REGIONAL TOTALS	10.21	8.86	5.45	7.97	6.00	11.17	5.06	8.56	6.64	6,16	7.22	7.61
Northeastern Region												
Daggett	}	l	}	1	1	1	1	ł	ł	1	ł	
Duchesne	98.9	6.00	4.00	9.00	1	ł	1	1	1	1	9.00	
Vintah	8.00	6.34	3.55	12.80	6.17	1	}	ł	1	1	8.50	
REGIONAL TOTALS	7.35	6.17	3.59	11,71	6.17	ł	1	1	   		8.15	7.00
Southeastern Region									i			
Carbon	1	1	1	}	1	1	1	{	1	1	;	
Емегу	1	i	}	1	1	1	}	1	1	1	1	
Grand	!	1	1	4.50	i	;	1	1	1	ļ	1	
San Juan	1	i	}{	:	-	1	1	1	1	1	;	
REGIONAL TOTALS	!	1	;	4.50	-	ļ	1		;	1	1	4.50
STATE TOTALS	7.55	8.08	4,52	8.09	6.05	9.71	5.06	8.62	6.70	6.62	7.25	7.10

"Washington, Kane and Wayne counties, Gambel's quail; all others, California quail.

Table 4. Trend of quail observed per 100 hours, 1978-88.

Region and					Year							Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	1	1	1	1,800	l	1	I	ł	I	1	1	
Cache	ł	1	1	1	ł	1	ł	1	1	ł	ł	
Davis	1	926	729	525	ŀ	1	ŀ	1	1	ļ	1,100	
Morgan	1	900	1	l	ŀ	222	1	1	l	l	1	
Rich	!	ł	ŀ	l	I	1	1	1	1	1	1	
Summit	1	ł	1	1	1	1	1	1	1	ł	ł	
Weber	1	1,000	ł	1	1	825	ŀ	1	1	1,500	ł	
REGIONAL TOTALS	1	927	729	891	1	511	ł	1	1	1,500	1,100	912
Central Region												
Juah	ł	1	1	1	1	1	1	1	1	1	ł	
Salt Lake	575	1,067	167	63	527	1,400	ł	!	1	1	1	
Sanpete	400	1	1	!	1	1	ł	1	1	1	1	
Tooele	1	I	1	1	1	1	1	ł	1	i	}	
Utah	217	1,700	006	75	i	1	1	320	2,000	1,600	1	
Wasatch	-	!	1	!	1	1	1	1	!	ł	!	
REGIONAL TOTALS	378	1,429	296	258	414	247	-	320	2,000	١,600	ł	177
Southern Region												
Beaver	1	•	ł	1	ł	ł	1	1	1	1	ł	
Garfield	1	1	1	1	1	1	ł	1	ł	1	1	
Iron	ł	1	1	1	1	ł	1	1	l	1	ł	
*Kane	}	1	1	1	!	1	1	ł	1	1	ł	
Millard	867	1,340	1,536	3,911	800	320	17.1	344	867	1,303	1,271	
Piute	ł	1	1	ł	1	1	1	1	1	ł	1	
Sevier	S	800	1	1	1,400	ł	1	}	1	ł	I	
"Washington	750	2,741	675	275	1771	605	380	783	1,604	2,029	230	
*Wayne	333	1	1	650	1	;		1	1	1	1	
REGIONAL TOTALS	299	1.951	967	1,053	169	280	357	663	1.484	1,958	527	1,027
<u>Northeastern Region</u>												
Daggett	ł	ł	ł	ł	1	1	1	1	ł	1	1	
Duchesne	310	503	2	202	23	42	1	ł	}	1	356	
Uintah	563	890	613	708	328	100	ł	ł	ŀ	1	1,800	
REGIONAL TOTALS	398	443	314	406	123	28	1	1	1	1	711	290
Southeastern Region												
Carbon	1,500	1	ŀ	1	1	1	1	1	ŀ	1	1	
Emery	920	1	1	1	1	!	1	1	I	1	ł	
Grand	;	1	ł	400	1	1	ł	ł	1	1	1	
San Juan	0	121	1	1	1	1	1	1	1	1	;	
REGIONAL TOTALS	425	127	ļ	400	1	I	1	ŀ	I	1	ł	317
STATE TOTALS	530	1,193	541	720	408	411	297	645	1.519	1.984	622	825
			!									

\*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, 1988.

Region and	Sample	Hunter-Days	Birds	Birds Per	% of	% of
County	Size*	<u> Afield</u>	Bagged	<u> Hunter-Day</u>	<u>Pressure</u>	<u> Harvest</u>
Northern Region	_		_			
Box Elder	6	166	133	.80	1.90	1.50
Cache**	4	150	33	.22	1.73	.37
Davis	20	834	617	.74	9.61	6.98
Morgan**	1	16	16	1.00	.19	.18
Rich**	1	16	16	1.00	.19	.18
Summit**	1	50	0	0.00	.57	0.00
Weber	8	333	116	35	3.84	1.32
REGIONAL TOTALS	41	1,569	935	60	18.07	10.56
<u>Central Region</u>						
Juab	2	267	367	1.38	3.07	4.15
Salt Lake	4	283	333	1.18	3.26	3.77
Sanpete**	2	83	66	.80	.96	.75
Tooele**	6	484	601	1.24	5.57	6.79
Utah	43	1,803	834	.46	20.76	9.43
Wasatch**	4	400	450	1.13	4.61	5.09
REGIONAL TOTALS	61	3,322	2,654	.80	38.26	30.00
Southern Region						
Beaver						
Garfield	1	50	250	5.00	.57	2.83
Iron	1	33	166	5.00	.38	1.88
Kane	0	0	0	0.00	0.00	0.00
Millard	4	217	0	0.00	2.50	0.00
Piute	0	0	0	0.00	0.00	0.00
Sevier	2	33	50	1.50	.38	.56
Washington	17	1,068	2,454	2.30	12.30	27.73
Wayne	1	33	66	2.00	38	.75
REGIONAL TOTALS	26	1,435	2,988	2.08	16.52	33.77
Northeastern Region						
Daggett						
Duchesne	12	634	567	.89	7.30	6.41
Uintah	19	1,152	1,001	.87	13.26	11.32
REGIONAL TOTALS	31	1,786	1,569	.88	20.57	17.73
Southeastern Region			-			
Carbon	4	133	50	.38	1.53	.56
Emery	5	150	166	1.11	1.73	1.88
Grand	1	83	66	.80	.96	.75
San Juan	0	0	0	0.00	0.00	0.00
REGIONAL TOTALS	10	367	283	.77	4.22	3,20
Unknown Counties	2	200	417	2.08	2.30	4.71
STATE TOTALS	171	8,682	8,849	1.02	100.00	100.00

<sup>\*</sup>Total hunter-trips from questionnaire returns.

<sup>\*\*</sup>Closed to quail hunting in 1986.

Table 6. Summary of quail bagged per hunter-day by region and county, 1982-88.

Region and				Year			
County	1982_	1983	1984	1985	1986	1987	<u> 1988</u>
Northern Region							
Box Elder	0.25	0.50	0.21	0.50	0.00	0.23	0.80
Cache	1.67	1.40	0.00	0.00	1.00	0.43	0.22
Davis	0.53	1.00	0.43	0.45	0.44	0.43	0.74
Morgan	0.00	2.50	0.00	1.00	1.00	2.00	1.00
Rich	0.67	0.00	0.00	0.00	0.00	0.00	1.00
Summit	0.00	0.29	0.00	0.00	0.40	0.00	0.00
Weber	1.11	1.08	0.64	0.71	0.69	0.11	0.35
REGIONAL TOTALS	0.79	0.94	0.40	0.54	0.50	0.35	0.60
<u>Central Region</u>							
Juab	1.60	2.00	0.33	0.00	2.00	0.00	1.38
Salt Lake	1.13	1.00	0.32	1.88	0.43	0.83	1.18
Sanpete	0.00	0.75	0.00	1.50	1.00	0.86	0.80
Tooele	0.00	2.00	0.22	1.50	0.33	1.00	1.24
Utah	0.81	0.86	0.82	0.60	0.72	0.59	0.46
Wasatch	0.00	2.67	1.25	0.00	0.00	0.50	1.13
REGIONAL TOTALS	0.86	0.96	0.65	0.85	0.69	0.63	0.80
Southern Region			-				
Beaver	0.00	0.00	0.00	1.83	0.00	0.00	5.00
Garfield	0.00	0.00	0.00	0.00	0.00	0.00	5.00
Iron	0.00	0.00	1.50	0.00	0.00	0.00	0.00
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	1.97	1.33	1.00	0.63	1.55	0.96	0.00
Piute	0.00	0.00	0.50	0.00	1.00	2.25	0.00
Sevier	0.14	0.00	0.86	1.80	0.00	0.00	1.50
Washington	1.19	1.53	1.98	1.23	1.27	2.33	2.30
Wayne	1.00	3.00	0.00	0.00	0.00	0.00	2.00
REGIONAL TOTALS	1.27	1.50	1.64	1.21	1.15	1.93	2.08
Northeastern Region							
Daggett	0.00	4.50	0.00	0.00	0.00	0.50	0.00
Duchesne	1.05	1.46	0.08	0.70	0.44	1.86	0.89
Uintah	0.64	0.70	0.72	1.00	0.70	0.52	0.87
REGIONAL TOTALS	0.83	1.11	0.54	0.86	0.63	0.81	0.88
Southeastern Region							
Carbon	0.89	0.40	0.00	1.00	0.00	1.00	0.38
Emery	0.67	0.76	0.00	0.31	1.14	1.06	1.11
Grand	0.00	0.00	0.00	0.00	0.00	0.50	0.80
San Juan	1.33	0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	0.85	0.67	0.00	0.62	0.29	0.85	0.77
Unknown counties	0.00	0.00	0.00	0.00	0.00	0.00	2.00
STATE TOTALS	0.93	1.10	0.85	0.88	0.72	0.97	1.02

<sup>\*</sup>Closed Season

Table 7. Percentage distribution of quail harvest by region and county, 1982-88.

Region and				Year			
County	1982	1983	1984	1985	1986	1987	1988
Northern Region							
Box Elder	0.62	1.54	0.98	0.30	0.00	0.96	1.50
Cache	1.55	0.83	0.00	0.00	0.44	1.92	0.37
Davis	2.95	9.03	6.11	5.16	3.59	1.92	6.98
Morgan	0.00	0.59	0.00	0.60	0.90	0.64	0.18
Rich	0.31	0.00	0.00	0.00	0.00	0.00	0.18
Summit	0.00	0.23	0.00	0.00	0.90	0.00	0.00
Weber	9.47	4.87	2.19	6.07	4.94	0.32	1.32
REGIONAL TOTALS	14.91	17.09	9.29	12.15	10.80	5.76	10.56
<u>Central Region</u>							
Juab	1.24	0.23	0.48	0.00	0.90	0.00	4.15
Salt Lake	5.59	4.16	1.46	9.11	2.69	1.60	3.77
Sanpete	0.00	0.71	0.00	0.91	0.44	3.84	0.75
Tooele	0.00	1.42	0.98	0.91	0.90	0.64	6.79
Utah	22.98	13.66	18.33	12.45	34.24	18.58	9.43
Wasatch	0.00	0.94	1.22	0.00	0.00	0.64	5.09
REGIONAL TOTALS	29.81	21.12	22.49	23.40	39.18	25.32	30.00
Southern Region							
Beaver	0.00	0.00	0.00	3.33	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	0.00	0.00	2.83
Iron	0.00	0.00	0.72	0.00	0.00	0.00	1.88
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	9.16	1.89	7.82	1.52	7.65	7.69	0.00
Piute	0.00	0.00	0.48	0.00	0.44	2.88	0.00
Sevier	0.16	0.00	1.46	2.72	0.00	0.00	0.56
Washington	20.81	24.37	46.45	35.56	29.27	42.62	27.73
Wayne	0.47	0.71	0.00	0.00	0.00	0.00	0.75
REGIONAL TOTALS	30.59	26.97	56.97	43.16	37.39	53.20	33.77
Northeastern Region							
Daggett	0.00	4.28	0.00	0.00	0.00	0.32	0.00
Duchesne	10.09	16.16	0.48	5.77	1.79	4.16	6.41
Uintah	7.30	12.24	10.76	9.11	7.19	3.84	11.32
REGIONAL TOTALS	17.39	32.68	11.24	14.89	9,00	8.33	17.73
Southeastern Region							
Carbon	3.88	0.23	0.00	4.85	0.00	0.32	0.56
Emery	2.17	1.89	0.00	1.52	3.59	5.44	1.88
Grand	0.00	0.00	0.00	0.00	0.00	1.60	0.75
San Juan	1.24	1.08	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	7.30	2.10	0.00	6.38	3.59	7.37	3.20
Unknown counties	0.00	0.00	0.00	0.00	0.00	0.00	4.71
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed Season

Table 8. Percentage distribution of quail hunting pressure by region and county, 1982-88.

Region and	<del></del>	····································		Year			
County	1982	1983_	1984	1985	1986	1987	<u> 1988</u>
<u>Northern Region</u>							
Box Elder	2.32	3.39	3.93	0.53	1.94	4.02	1.92
Cache	0.87	0.64	0.61	1.06	0.32	4.33	1.73
Davis	5.22	9.93	12.00	10.18	5.85	4.33	9.61
Morgan	0.29	0.25	0.41	0.53	0.65	0.30	0.19
Rich	0.43	0.00	0.00	0.00	0.00	0.00	0.19
Summit	0.43	0.91	0.00	0.00	1.63	0.30	0.57
Weber	7.97	4.96	2.90	7,51	5.20	2.78_	3.84
REGIONAL TOTALS	17.54	20.08	<u>19.87</u>	19.83	15.63	16.08	18.07
<u>Central Region</u>							
Juab	0.72	0.13	1.23	0.26	0.3	0.30	3.07
Salt Lake	4.64	4.57	3.93	4.28	4.55	1.85	3.26
Sanpete	0.00	1.04	0.61	0.53	0.32	4.33	0.96
Tooele	0.58	0.78	3.72	0.53	1.94	0.61	5.57
Utah	26.52	13.37	19.04	18.23	34.19	30.65	20.76
Wasatch	0.00	0.39	0.83	0.53	0.00	1.23	4.61
REGIONAL TOTALS	32.46	24.28	29.39	24.39	41.37	38.99	38.26
Southern Region							
Beaver	0.14	0.00	0.00	1.60	1.63	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	0.00	0.00	0.57
Iron	0.14	0.00	0.41	0.80	0.65	0.00	0.38
Kane	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Millard	4.35	1.56	6.62	2.14	3.57	7.73	2.50
Piute	0.00	0.00	0.83	0.00	0.32	1.23	0.00
Sevier	1.01	0.39	1.45	1.34	0.65	0.00	0.38
Washington	16.38	17.51	19.87	25.47	16.60	17.64	12.30
Wayne	0.43	0.25	0.20	0.00	0.00	0.00	0.38
REGIONAL TOTALS	22.46	19.72	29.39	31.36	23.44	26.62	16.52
Northeastern Region			,				
Daggett	0.00	1.56	0.00	0.00	0.00	0.61	0.00
Duchesne	8.99	12.14	4.97	7.23	2.92	2.16	7.30
Uintah	10.58	19.20	12.63	8.03	7.48	7,12	13.26
REGIONAL TOTALS	19.57	32.90	17.59	15.27	10.42	9.90	20.57
Southeastern Region							
Carbon	4.06	0.64	2.90	4.28	6.83	0.30	1.53
Emery	3.04	2.74	0.61	4.28	2.28	4.95	1.73
Grand	0.00	0.13	0.20	0.26	0.00	3.09	0.96
San Juan	0.87			0.26	0.00	0.00	0.00
REGIONAL TOTALS	7.97			9.11	9.11	8.34	4.22
Unknown counties	0.17	0.00	0.00	0.00	0.00	0.00	2.30
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed Season

Table 9. Statewide summary of quail harvest statistics, 1951-1988.

,	Total	Total	Hunter-days	Quail Per	Quai1
Year	Hunters	<u> Harvest</u>	Afield	Hunter-day	Per Hunte
1951	3,856	6,362	7,069	0.90	1.65
1952	2,694	6,105	5,500	1.11	2.27
L953	2,676	5,753	4,494	1.28	2.15
L954	3,855	7,479	8,696	0.86	1.94
1955				0.17	2.10
L956					2.26
L957					1.85
1958					3.73
L959	8,554	22,854	18,174	1.26	2.67
L960	7,117	21,272	13,971	1.52	2.99
1961	9,980	27,362	25,746	1.06	2.74
L962	6,462	18,710	14,660	1.27	2.89
.963	8,059	28,088	16,383	1.71	3.49
.964	8,951	31,189	20,510	1.52	3.48
.965	6,163	17,532	16,528	1.06	2.45
1966	6,465	22,771	16,720	1.36	3.52
L967	8,455	26,187	23,806	1.10	3.10
L968	9,302	28,469	23,132	1.23	3.06
.969	9,160	26,119	22,529	1.16	2.85
.970	6,141	18,896	16,452	1.15	
.971	8,039	21,082	21,595	0.98	3.08
972	7,380	16,504			2.62
.973	5,654	14,324	21,779	0.76	2.24
L974	6,097	12,005	17,777	0.81	2.53
.975	·	•	14,702	0.82	1.97
.975 .976	6,397	16,903	16,805	1.01	2.64
	5,215	14,454	13,261	1.09	2.77
.977	4,446	9,496	9,646	0.98	2.14
.978	5,924	15,491	13,649	1.13	2.61
L979	5,632	15,821	13,550	1.17	2.81
L980	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
L985	3,065	7,051	7,994	0.88	2.30
986	2,432	4,574	6,326	0.72	1.88
L987	2,549	7,648	7,918	0.97	3.00
L <b>988</b>	2,671	8,849	8,682	1.02	3.31
OTALS					
(1959–88)	181,446	508,332	456,150	(32.80)	(82.04)
VERAGES			<u></u>	, , <u> </u>	
(1959–87)	6,165	17,224	15,430	1.10	2.71

Gambel's quail long period waterhole count trend on the west slope of the Beaver Dam Mountains, Washington County, 1975-88. These counts have been conducted since 1962. Table 10.

Index		1975	1976	1977	1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
[ota]	gunok	145	5	1	19	253	72	37	82	114	991	47	163	348	59
otal	iotal adults Lotal quail	⊋ 19	2 <u>-</u>	1 2	67 8	339	25 25	S 0	£ 6	4 6	g (	= 4	21.	139	747
Guno	foung per 100 adults	725	115	=	323	329	138	148	258	814	193	427	340	250	126

## HUNGARIAN PARTRIDGE

### SUMMARY

Harvest data for 1987 indicated that 1988 breeding population densities were again much improved. Limited brood data was collected in Box Elder, Cache and Wasatch counties and indicated decreased Hun production.

The 1988 hunt indicated increased hunting pressure on Huns when compared to 1987. The number of Huns harvested decreased in 1988. The hunter-days afield remained about the same as 1987. Total hunters, days afield and harvest remained significantly below the long-term average. However, hunter success was at the 29-year 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. The reason for the decline in production and harvest in 1988 was possibly due to the hot, dry summer.



### Brood Counts

Results of the annual random brood counts for 1988 are shown in Table 1 of this section. Long-term trends of young-adult ratios, mean brood size and Huns observed per 100 hours are shown in Tables 2-4. Results of the survey for 1988 compared to 1987 and the previous 10-year average follow:

		<u>Percent</u>	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total Huns observed	77	-56	-14
Young per 100 adults	328	-42	-41
Mean brood size	7.83	-29	-26
Huns observed per 100 hours	248	-430	+28
Total hours effort	31	-23	-54

Harvest data for 1987 indicated a significant improvement over the previous year but still below average breeding population for 1988. Hungarian partridge should have overwintered well but this was not reflected in the 1988 production figures. Young per 100 adults declined 42 percent from the previous year and was 41 percent below average.

The hours of effort decreased 23 percent from 1987, and was 54 percent below average.

### <u>Harvest</u>

### Hunter Questionnaire

Results of the annual hunter questionnaire for 1988 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 1988 season compared to 1987 and the previous 29-year average follow:

	<u>Percent</u>	<u>change from</u>
<u>1988</u>	<u> 1987</u>	<u>Average</u>
2,471	+23	-32
4,424	-23	-44
5,392	+3	-41
0.82	-25	0
1.79	-29	-11
	2,471 4,424 5,392 0.82	1988 1987  2,471 +23 4,424 -23 5,392 +3 0.82 -25

Hungarian partridge hunting pressure remained the same, while success decreased 25 percent during 1988 as compared to 1987. Harvest was 44 percent below the 29-year average.

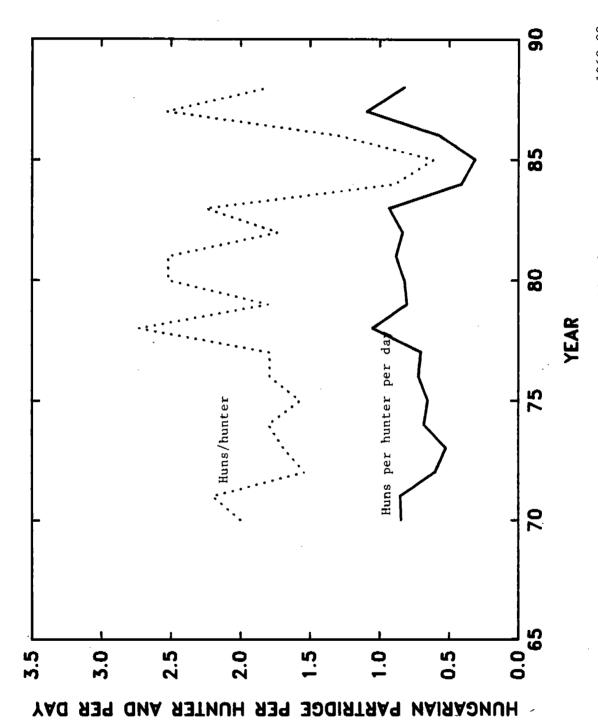
### Field Bag Checks

Results of the survey for 1988 are shown in Table 10. Hunter success trends determined via this method are shown in Table 11. Indices obtained for 1988 compared to 1987 and the previous 10-year average follow:

•		Percent o	hange from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total hunters checked	79	-23	-40
Total hours hunted	248	-42	-69
Huns per hunter (complete hunts)	1.04	-38	+46
Huns bagged per 100 hours	24	-23	+50
Average hours per hunter-day (complete hunts)	4.3	+2	-2
Hours hunted per Hun bagged (complete hunts)	4.1	+24	-72

Field bag check data submitted in 1988 was for Box Elder County only, and was collected at the game checking station at Snowville, Utah. Many of these hunters are hunting sagegrouse, but Huns are often found in the same areas.

Statewide trend of Hungarian partridge harvest statistics. Figure 1.



Statewide trend of Hungarian partridge hunter success rates, 1968-88. Figure 2.

Table 1. Hungarian partridge summer inventory summary, 1988.

Table 2. Trend of Hungarian partridge young per 100 adults, 1978—88.

1978   1979   1980   1981   1982   1983   1984   1985   1966   1987   1988     580							Year						Average
1100	County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
ALS  SEQ 840 688 671 409 400 45 569 307  ALS  SEQUENT  NOT APPLICABLE  ALS  SEQ 780 683 671 409 400 45 569 307	Northern Region												
ALS  Segion  NOT APPLICABLE  ALS  SEGO 180 683 600 409 400 400 400  ALS  Region  NOT APPLICABLE  ALS  SEGO 780 683 600 409 400 440 569 328	Box Elder	280	840	688	1/9	409	400	ł	ł	45	569	307	
ALS  SEG 840  SON  SON  SON  SON  SON  SON  SON  SO	Cache	1	-	ł	1	ļ	ł	1	ļ	1	.	400	
A4.5	Davis	1	1	1	I	1	1	1	}	1	1	1	
ALS	Morgan	1	1	1	ł	1	1	ł	ł	1	!		
ALS 580 840 691 800 409 400 450 569 324  On	Rich	1	1	700	300	ł	1	1	1	1	ł	ł	
ALS 580 840 691 600 409 450 569 324  ON OT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Resion  NOT APPLICABLE	Summit	ł	ł	!	}	ŀ	1	1	1	ł	ł	1	
ALS  SEO 840 691 600 409 400 450 569 324  On 500 450 569 324  On 500	Weber	1	!	1		ŀ	ł	1	1	1	1	ł	
Solution   Solution	٠,١	580	840	691	900	409	400		1	450	569	324	267
ALS  Region  NOT APPLICABLE  NOT APPLICABLE  ALS  Resion  NOT APPLICABLE  ALS  Resion  NOT APPLICABLE  NOT APPLICABLE  ALS  Resion  NOT APPLICABLE	Central Region												,
ALS  ALS  ALS  ALS  ALS  ALS  ALS  ALS	Juab	ł	200	1	}	1	1	}	1	1	1	ŀ	
ALS  ALS  ALS  ALS  ALS  ALS  ALS  ALS	Salt Lake	I	1	1	ŀ	1	}	ł	1	1	!	l	
ALS	Sanpete	ł	1	1	1	ł	ł	1	1	ł	ł	ł	
ALS	Tooele	ł	1	1	ľ	ł	1	ł	l	1	1	}	
ALS  ALS  ALS  ALS  ALS  ALS  ALS  ALS	Utah	1	1	0	ł	!	ł	ł	ł	ł		ł	
ALS  Lion  ALS  Region  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E  Resion  N O T A P P L I C A B L E	Wasatch	-	1	-	!	ł	ł	1	1	400	ŀ	400	
tion  NOT APPLICABLE  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE	REGIONAL TOTALS	-	500	1	ł			1		400	1	400	450
ALS  Region  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Southern Region Beaver										:		
ALS  Region  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  NOT APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Garfield												
ALS  Region  NOT APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Iron												
ALS  Region  NOT APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Kane												
ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  NOT APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Millard				0 Z	Ą	1	-					
ALS  Region  N O T APPLICABLE  ALS  Region  N O T APPLICABLE  N O T APPLICABLE  ALS  Resion  N O T APPLICABLE  ALS  ALS  ALS  ALS  ALS  ALS  ALS  A	Piute						!						
ALS  Region  NOT APPLICABLE  ALS  Region  NOT APPLICABLE  NOT APPLICABLE  ALS  S80 780 663 600 409 400 440 569 328	Sevier												
ALS  Region  N O T APPLICABLE  ALS  ALS  ALS  S80 780 663 600 409 400 440 569 328													
ALS  Region  N O T A P P L I C A B L E  Region  N O T A P P L I C A B L E  N O T A P P L I C A B L E  ALS  ALS  S80 780 663 600 409 400 440 569 328	Washington												
ALS  Region  N O T A P P L I C A B L E  Region  N O T A P P L I C A B L E  N O T A P P L I C A B L E  ALS  ALS  S80 780 663 600 409 400 440 569 328	Wayne					1						!	
Region         ALS         Region         N O T APPLICABLE         ALS         ALS         ALS         ALS         580 780 663 600 409 400 440 569 328	REGIONAL TOTALS												
ALS  Region  N O T A P P L I C A B L E  N O T A P P L I C A B L E  ALS  580 780 663 600 409 400 440 569 328	Northeastern Region									,			
ALS  Region  N O T A P P L I C A B L E  N O T A P P L I C A B L E  ALS  580 780 663 600 409 400 440 569 328	Daggett												
ALS  Region  N O T A P L I C A B L E  ALS  580 780 663 600 409 400 440 569 328	Duchesne				O Z	A	I I	B L					
AES  Region  NOTAPPLICABLE  ALS  580 780 663 600 409 400 440 569 328	Uintah	:	;										
Region         N O T APPLICABLE         ALS       N O T APPLICABLE         ALS       580 780 663 600 409 400 440 569 328	REGIONAL TOTALS												
NOT APPLICABLE  ALS 580 780 663 600 409 400 440 569 328	Southeastern Region												
ALS 580 780 663 600 409 400 440 569 328	Carbon												
ALS 580 780 663 600 409 400 440 569 328	Emerv				O	Ą	)  -	-					
ALS 580 780 663 600 409 400 440 569 328	Grand				) }		4	) 1					
ALS 580 780 663 600 409 400 440 569 328	San Juan									ļ			
580 780 663 600 409 400 440 569 328	REGIONAL TOTALS												
	STATE TOTALS	280	780	663	909	409	400	!		440	569	328	555

Table 3. Trend of Hungarian partridge mean brood size from 1978-88.

Region and						Year						Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	11.60	8.40	11.00	12.00	11.25	10.67	l	!	18.00	11.88	8.60	
Cache	1	}	1	}	ł	1	}	1	1	1	1	
Davis	1	}	}	ł	1	ł	ł		1	1	ł	
Morgan	ł	1	1	ł	!	1	ŀ	1	1	1	ł	
Rich	;	ł	7.00	9.00	1	1	ł	1	!	ł	1	
Summit	ł	ł	ł	1	ł	1	1	1	l	1		
Weber	!	1	1	1	1		}	ł	!			
REGIONAL TOTALS	11.60	8.40	9.50	10.80	11.25	10.67	-	1	18.00	11.88	8.60	11.51
Central Region												
Juap	1	<b>2</b> .00					1		}	<u> </u>		
Salt Lake	1	1	}	1	1	1	ł	1	ł	Í	1	
Sanpete	ł	1	1	}	}	1	1	1	1	ł	1	
Tooele	ł	;	1	1	1	ŀ	ŀ	1	1	1	1	
Utah	1	1	}	1	ł	1	1	ł	1	1	1	
Wasatch	1	1	1	1	1	1	1	+	4.00	1	4.00	
REGIONAL TOTALS	-	5.00	ł	ł	ł	ł	ł	1	4.00	i i	4.00	4.50
Southern Region			-			-						
Beaver												
Garfield												
Iron												
Kane												
Millard				LON	∢	PPLIC	ABLE					
Piute												
Sevier												
Washington												
Wayne												
REGIONAL TOTALS												
Northeastern Region												
Daggett												
Duchesne				Z	OT AP	PLIC	ABLE					
Uintah												
REGIONAL TOTALS												
Southeastern Region			;							:		
Carbon												
Emery				O Z	T A P	PLIC	ABLE				-	
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	11.60	7.83	9.50	10.80	11.25	10.67	1	ł	11.00	11.88	7.83	10.56
				•					İ			

Table 4. Irend of Hungarian partridge observed per 100 hours, 1978-88.

Region and						Year						Average
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	203	235	154	570	144	67	1	0	96	561	438	
Cache	}	!	1	1	1	1	1	ł	ł	1	88	
Davis	1	1	ŀ	1	}	1	}	1	ł	ł	1	
Morgan	1	}	l	1	l	ł	1	1	ł	1	1	
Rich	ł	ł	ł	1	ŀ	1	ļ	1	1	1	1	
Summit	1	I	1	ł	ŀ	ł	ı	1	ł	ŀ	ł	
Weber	1	ł	1	ł	ł	!	l	1	ł	ł	ł	
REGIONAL TOTALS	151	174	158	639	144	29	1	0	50	435	240	202
Central Region												
Juab		009		ŀ	1	1	ł	}	1	ł	1	
Salt Lake	1	1	1	1	1	ł	1	1	ł	1	i	
Sanpete	ł	ł	ł	1	<b>¦</b>	1.	l	1	ŀ	{	ł	
Tooele	;	1	!	ł	1	1	ł	1	1	1	i	
Utah	ŀ	1	ŀ	ł	ł	1	1	1	ł	1	1	
Wasatch	1	0	33	1	ł	ŀ		1	200	1	200	
REGIONAL TOTALS	1	200	. 17	i	ŀ			!	200		200	239
Southern Region												
Beaver												
Garfield												
Iron												
Kane												
Millard				LON	A	PLIC	ABLE					
Piute												
Sevier										•		
Washington												
REGIONAL TOTALS												
Northwestern Design												
Not theastern Region												
naggerr												
Duchesne				o Z	ı A P	PLIC	ABLE					
Uintah												
REGIONAL TOTALS												
Southeastern Region												
Carbon												
Emery				N 0 T	AP	PLICA	ABLE					
Grand												
San Juan									-			
REGIONAL TOTALS												
STATE TOTALS	151	177	144	565	144	67	1	0	9	435	248	194

Table 5. Summary of Hungarian partridge hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Birds	Birds per	% of	% of
County	Size*	<u>Afield</u>	<u>Bagged</u>	<u> Hunter-day</u>	Pressure	Harves
<u>Northern Region</u>				•		
Box Elder	109	3,689	3,489	.95	68.42	78.86
Cache	17	534	267	.50	9.90	6.03
Davis	2	66	0	0.00	1.23	0.00
Morgan	1	16	0	0.00	.30	0.00
Rich	0	0	0	0.00	0.00	0.00
Summit	1	33	100	3.00	.61	2.26
Weber	4	100	116	1.17	1.85	2.64
REGIONAL TOTALS	134	4,441	3,973	.89	82.36	<u>89.81</u>
Central Region						
Juab**	0	0	0	0.00	0.00	0.00
Salt Lake**	2	183	16	.09	3.40	.37
Sanpete**	0	0	0	0.00	0.00	0.00
Tooele	10	250	83	.33	4.64	1.88
Utah**	2	267	83	.31	4.95	1.88
Wasatch**	<u>2</u>	66			1.23	
REGIONAL TOTALS	16	768	183_	.24	14.24	4.15
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**	Ö	0	0	0.00	0.00	0.00
Millard**	Ö	Ö	0	0.00	0.00	0.00
Piute**	Ō	Ō	Ö	0.00	0.00	0.00
Sevier**	ō	Ö	Ö	0.00	0.00	0.00
Washington**	1	116	250	2.14	2.15	5.66
Wayne**	0	. 0	0	0.00	0.00	0.00
REGIONAL TOTALS	1	116	250	2.14	2.15	5.66
Northeastern Region						
Daggett**	0	0	0	0.00	0.00	0.00
Duchesne**	i	16	ŏ	0.00	.30	0.00
Uintah**	Ō	0	0	0.00	0.00	0.00
REGIONAL TOTALS	1	16	. 0	0.00	.29	0.00
Southeastern Region				V. 00	• 60 )	<u> </u>
Carbon**	1	33	0	0.00	.61	0.00
Emery**	ī	16	16	1.00	.30	.37
Grand**	0	0	0	0.00	0.00	0.00
San Juan**	Ÿ	•	•	0.00	0.00	J.00
REGIONAL TOTALS	2	50	16	.33	.92	.37
Unknown Counties						
STATE TOTALS	154	5,392	4,424	.82	100	100

<sup>\*\*</sup>Closed to Hungarian partridge hunting in 1988.

Table 6. Summary of Hungarian partridge bagged per hunter-day by region and county, 1982-88.

Darley 1				<del></del> -			<u> </u>
Region and	7000	7.0.0		<u>Year</u>			
County	1982	1983	1984	1985	<u> 1986</u>	<u> 1987</u>	1988
Northern Region							
Box Elder	0.83	0.99	0.44	0.25	0.60	1.28	0.95
Cache	1.03	0.80	0.15	2.00	0.00	1.05	0.50
Davis	5.00	0.29	0.00	0.00	0.00	0.00	0.00
Morgan	1.40	0.75	0.00	0.00	0.00	0.67	0.00
Rich	2.00	0.94	0.00	0.00	0.00	1.50	0.00
Summit	0.00	0.00	0.00	0.00	0.00	2.00	3.00
Weber	1.00	<u> 1.36_</u>	1.00	0.00	0.00	1.25	1.17
REGIONAL TOTALS	0.89	0.93	0.41	0.26	0.59	1.23	0.89
<u>Central Region</u>							
Juab	0.00	0.00	0.00	0.00	0.00	0.30	0.00
Salt Lake	0.00	0.00	0.50	0.50	0.00	0.00	0.09
Sanpete	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Tooele	0.00	1.91	0.00	0.46	0.00	0.00	0.33
Utah	0.00	0.13	2.00	0.00	0.00	0.33	0.31
Wasatch	0.00	1.77	1.00	1.50	0.00	0.00	0.00
REGIONAL TOTALS	0.00	0.96	0.55	0.48	0.00	0.20	0.24
Southern Region							<u> </u>
Beaver	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
Iron	1.00	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
Millard	0.00	1.00	0.00	0.00	2.00	0.00	0.00
Piute	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sevier	0.00	0.50	0.00	0.00	0.20	2.00	0.00
Washington	0.13	2.00	0.00	0.00	0.00	0.00	
Wasatch	0.00	1.77	1.00	0.00	0.00		2.14
REGIONAL TOTALS	0.00	0.96	0.55	0.00	0.78	0.00	0.00
Northeastern Region	0.00	0.90	0.55	0.00	0./0	1.33	2.14
Daggett	0.00	0.00	0 00	1 00	0 00	0.00	
Duchesne	0.00		0.00	1.00	0.00	0.00	0.00
Uintah		0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	1.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.33	0.00	0.00	0.50	0.00	0.00	0.00
Southeastern Region Carbon	0 00	0.00	0 00	0.00			<b>.</b>
	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emery	0.00	0.00	0.00	0.00	0.00	0.00	1.00
Grand	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	0.00	0.00
REGIONAL TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.33
Unknown Counties	0.00	0.00	0.00	0.00	0.00	0.30	0.00
STATE TOTALS	0.83	0.93	0.41	0.31	0.57	1.09	0.82

<sup>\*</sup>Closed Season

Table 7. Percentage distribution of Hungarian partridge harvest by region and county, 1982-88.

Region and				Year			
County	1982	1983	1984	1985 _	1986	<u> 1987</u>	<u> 1988</u>
<u>Northern Region</u>							
Box Elder	74.66	67.61	79.04	60.34	91.14	80.25	78.86
Cache	11.64	14.39	2.94	5.94	0.00	9.87	6.03
Davis	1.71	0.40	0.00	0.00	0.00	0.00	0.00
Morgan	7.19	1.23	0.00	0.00	0.00	0.85	0.00
Rich	1.37	3.27	0.00	0.00	0.00	1.28	0.00
Summit	0.00	0.00	0.00	0.00	0.00	0.85	2.26
Weber	1.71	3.07	8.90	0.00	0.00	2.14	2.64
REGIONAL TOTALS	98.29	89.97	91.03	66.62	91.14	95.27	89.81
<u>Central Region</u>		•					
Juab	0.00	0.00	0.00	0.00	0.00	1.28	0.00*
Salt Lake	0.00	0.00	1.47	2.97	0.00	0.00	0.37*
Sanpete	0.00	0.00	0.00	0.00	0.00	0.00	0.00*
Tooele	0.00	4.30	0.00	18.10	0.00	0.00	1.88
Utah	0.00	0.40	5.96	0.00	0.00	0.42	1.88
Wasatch	0.00	4,72	1.47	9.05	0.00	0.00	0.009
REGIONAL TOTALS	0.00	9.42	8.90	30.27	0.00	1.71	4.15
Southern Region							
Beaver	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
Iron	0.34	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
Millard	0.00	0.40	0.00	0.00	7.59	0.00	0.00
Piute	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Sevier	0.00	0.20	0.00	0.00	1.27	1.71	0.00
Washington	0.00	0.00	0.00	0.00	0.00	0.00	5.66
Wayne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	0.34	0.60	0.00	0.00	8.86	1.71	5.66
Northeastern Region							
Daggett	0.00	0.00	0.00	2.97	0.00	0.00	0.00
Duchesne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Uintah	1.37	0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	1.37	0.00	0.00	2.97	0.00	0.00	0.00
Southeastern Region							
Carbon	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Emery	0.00	0.00	0.00	0.00	0.00	0.00	0.37
Grand	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	0.00	0.00
REGIONAL TOTALS	0.00	0.00	0.00	0.00	0.00	0.00	0.37
Unknown counties	0.00	0.00	0.00	0.00	0.00	1.28	0.00
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed Season

Table 8. Percentage distribution of Hungarian partridge hunting pressure by region and county, 1982-88.

Region and			A .	Year			
County	1982	1983	1984	1985	1986	1987	1988
Northern Region		_					<del>- 200</del>
Box Elder	74.65	63.43	73.62	74.98	87.68	68.22	68.42
Cache	9.40	16.80	7.95	0.91	0.72	10.28	9.90
Davis	0.28	1.33	1.81	0.00	0.00	1.40	1.23
Morgan	4.27	1.51	3.66	1.82	0.00	1.40	0.30
Rich	0.57	3.24	0.60	0.00	0.72	0.93	0.00
Summit	1.14	1.14	0.00	0.00	0.00	0.46	0.61
Weber	1.42	2.10	3,66	0.00	0.00	1.86	1.85
REGIONAL TOTALS	91.75	89.56	91.39	77.79	89.13	84.57	82.36
<u>Central Region</u>	•						
Juab	0.00	1.14	0.00	0.00	0.72	4.67	0.00
Salt Lake	0.28	0.00	1.21	1.82	0.00	0.00	3.40
Sanpete	0.00	0.37	0.00	0.91	0.72	0.46	0.00
Tooele	3.99	2.10	3.66	12.01	0.72	2.80	4.64
Utah	1.99	3.04	1.21	2.77	1.44	1.40	4.95
Wasatch	0.85	2.47	0.60	1.82	0.00	0.00	1.23
REGIONAL TOTALS	7.12	9.13	6.74	19,45	3,62	9.34	14.24
Southern Region							
Beaver	0.00	0.19	1.21	0.00	0.72	0.00	0.00
Garfield	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Iron	0.28	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
Millard	0.00	0.37	0.00	0.00	2.17	0.00	0.00
Piute	0.00	0.00	0.16	0.00	0.00	0.00	0.00
Sevier	0.00	0.37	0.00	0.00	3.62	0.93	0.00
Washington	0.00	0.00	0.00	0.00	0.00	0.46	2.16
Wayne	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	0.28	0.93	1.21	0.00	6.52	1.39	2.15
Northeastern Region							,
Daggett	0.28	0.00	0.00	0.91	0.00	0.00	0.00
Duchesne	0.00	0.00	0.00	0.00	0.00	0.00	0.30
Uintah	0,57	0.00	0.60	0.91	0.72	0.00	0.00
REGIONAL TOTALS	0.85	0.00	0.60	1.82	0.72	0.00	0.29
Southeastern Region							
Carbon	0.00	0.19	0.00	0.00	0.00	0.00	0.61
Emery	0.00	0.00	0.00	0.00	0.00	0.00	0.30
Grand	0.00	0.00	0.00	0.91	0.00	0.00	0.00
San Juan	0.00	0.00	0.00	0.00	0.00	0.00	0.00
REGIONAL TOTALS	0.00	0.19	0.00	0.91	0.00	0.00	0.92
Unknown counties	0.00	0.19	0.00	0.00	0.00	4.67	0.00
STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00

<sup>\*</sup>Closed Season

Table 9. Statewide summary of Hungarian partridge harvest statistics, 1955-88.

	Total	Total	Hunter-days	Huns Per	Huns
Year	Hunters	Harvest	Afield	Hunter-day_	<u>Per Hunte</u>
1955	<del></del>				0.39
1956					0.89
1957					0.45
1958	<del></del>				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	_	0.65	1.57
1976	•		8,216		1.79
	3,517	6,287	8,753	0.72	
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
TOTAL					
(1959-88)	108,446	234,852	271,030	(24.56)	(60.34)
AVERAGES		-		-M-14-1-1	
(1959-87)	3,654	7,946	9,160	0.82	2.02

Table 10. Hungarian partridge field bag check summary, 1988.

		4	ALL HUNTS				COMP	COMPLETE HUNTS			
Region and	Total	Total	Total	Total	Birds/	Total Complete	Total	Total	Total	Birds/	Birds/
County	Parties	Hunters	Hours	Birds	100 Hr	Hunts	Hunters	Hours	Birds	100 Hr	
Northern Region											
Box Elder	37	79	248	62	52	28	47	202	49	54	1.04
Cache	1	1	ì	}	1	;	1	1	1	ł	ļ
Davis	1	1	1	1	ł	!	1	ı	ł	1	!
Morgan	1	!	1	}	;	1	ŀ	1	1	1	1
Rich	1	}	ł	}	1	i	1	l	}	i	}
Summit	1	1	ł	1	}	1	1	1	1	ł	ł
Weber	!	į	<b>i</b>	-	ł	1	;	l	1	1	!
REGIONAL TOTALS	37	79	248	62	25	28	47	202	49	24	1.04
Central Region											
Juab											
Salt Lake											
Sanpete				0 2	DATA						
Tooele											
Utah											
Wasatch											
REGIONAL TOTALS											
Southern Region											
Beaver											
Garfield											
Iron											
Kane											
Millard				<b>-</b> 0 ₩	APP	LICABLE					
Piute											
Sevier											
Washington											
Wayne											
REGIONAL TOTALS											
Northeastern Region	اے										
Daggett											
Duchesne				L 0 N	APPL	ICABLE					
Uintah											
REGIONAL TOTALS											
Southeastern Region	اھع										
Carbon											
Emery											
Grand				L 0 N	APPL	.ICABLE					
San Juan											
STITE TOTALS		i		;		6			!		
STATE TOTALS	37	79	248	62	25	28	47	202	6	24	1.04

Table 11. Hungarian partridge hunter success trend determined by field bag checks, 1983-88.

	200		•		•	2	•	200	202	_	2	
Region and	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/	Birds/
County	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
Northern Region												
Box Elder	17	0.62	ł	ł	ო	0.16	2	0.16	31	1.69	24	1.04
Cache	l	1	1	1	1	1		1	!	ł	1	1
Davis	;	1	1	1	1	1	1	1	1	}	1	ł
Morgan	!		!	1	1	!	ł	1	ł	ŀ	}	
Rich	1	}	ł	1	ŀ	}	ŀ	ŀ	1		ł	ł
Summit	1	1	}	1	1	1	1	İ	1	1	}	1
Weber	1	1	1	i	1	;	1	1	ł	}	1	
REGIONAL TOTALS	17	0.62	1	1	9	0.16	2	0.16	31	1.69	24	1.04
Central Region												
Juab	1	1	}	i	1	1	1	ł	1	1	1	1
Salt Lake	1	1	1	1	1	1	ŀ	1	ł	ł	1	1
Sanpete	ł	ł	ł	}	1	}	}	1		ł	1	1
Tooele	1	ł	ł	1	1	1	ł	ł	ł	1	1	ł
Utah	1	1	1	}	1	ł	1	1	ł	ł	1	
Wasatch	-	!	1	1	1	1	1	i	1	ł	1	1
REGIONAL TOTALS	-	1	1	1	ł	1	!	l	!		1	1
Southern Region												
Beaver												
Garfield												
Iron												
Kane			-									
Millard			L O N	⋖	PPLICA	8 L E						
Piute												
Sevier												
Machineton												
Masmilgion												
Mayne DEGIONAL TOTALS					l							į
ארפונישור ופוארט												
Northeastern Region Daggett	⊊l											
Duchesne			NOT	APP	LICA	8 L E						
Uintah												
REGIONAL TOTALS												
Southeastern Region	되											
Carbon												
Emery			<b>⊢</b> 0 ×	APP	LICA	BLE						
Grand												
San Juan												
REGIONAL TOTALS												
STATE TOTALS	17	0.62			!	3 0.16		2 0.16		31 1.6	.69 24	1.04

# WILD TURKEY

## **SUMMARY**

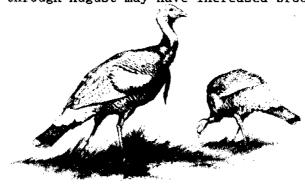
Turkey populations continued to improve on all units, and the increasing numbers are again reflected in the reported observations and the annual harvest.

Hunter success and turkey observation data for the 1988 spring season indicated that the East Zion area had another year of increasing turkey population. A new record of 44 birds harvest was reported for this unit. The Boulder Mountains and LaSal Mountains also indicated growing populations. However, the remaining units of the state were closed to hunting. Rio Grande turkeys were released on Pine Valley mountain in 1984, but the population was not considered to be huntable in 1988. A fall turkey hunting season was not held anywhere in 1988.

Spring hunting pressure was up again in 1988. Complaints about hunters interfering with each other due to over-crowding were common. Concern for hunter safety may require further restrictions in pressure. It is quite obvious that hunter interest in spring turkeys can outstrip supply. We need to continue to establish new populations, then cautiously promote safe ethical hunting practices.

Hunter success was down 6 percent. A total of 66 turkeys were harvested in the spring hunt of 1988 compared to 60 taken in 1987. This was a new record spring harvest. Observations of turkeys remained higher than average in 1988, but percent of hunters observing turkeys dropped on the East Zion area.

Temperatures in southcentral and southeastern Utah were at or above normal April through August, and precipitation was above normal in April. In the southcentral climatic subdivision (E. Zion turkey unit) precipitation was 1.24 inches above normal in April. This could have reduced hatching success, however above average temperatures and normal or slight below normal precipitation in May through August may have increased brood survival.



### Harvest

#### Spring Gobbler Season

Results of the 1988 spring season are shown in Table 1 of this section. The trend of these data since the first spring season in 1967 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 1988 spring season compared to 1987 and the previous 20-year average follow:

		Percent	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Permits sold	490	+28	+180
Hunters afield	421	+21	+190
Turkeys harvested	66	+10	+247
Hunter-days afield	1,267	+10	+197
Percent hunter success	16	-6	+23
Turkeys bagged per hunter-day	0.05	0	+25
Percent of hunters who observed			
turkeys	50	-12	+32

Permit sales and hunters afield increased substantially from 1987 and were well above average. Total harvest increased from 60 in 1987 to 66 in 1988, which is 247 percent above the 20-year average. This was the second year of record high harvest. Hunter success rates remained above average. The proportion of hunters who reported having observed turkeys was 32 percent above average. The East Zion unit accounted for 54 percent of the hunting pressure based on hunter-days afield, compared with 43 percent in 1987. The East Zion unit yielded two-thirds of the statewide harvest each of the last two years.

The trend of spring turkey harvest statistics is shown in Figures 1 and 2. All successful hunters, except one, claimed to have used shotguns in taking turkeys. Five percent of the hunters (16) used bows and 1 percent used rifles (4) which were illegal. Seven turkeys were reported crippled and not recovered. Seven of 54 known kills were suspected of being females and another eight are suspected of being jakes.

Thirty-three percent of the harvest (15 of 46) occurred on opening weekend, 13 percent the following weekend, 9 percent the following weekend and 2 percent the last weekend of the hunt. These weekends amounted to 8 days or 10.25 birds/weekend day. The remaining 56 percent of the harvest occurred on weekdays (15 days) or 1.33 birds per weekday. This indicates more weekday hunting in 1988 compared with 1987. This corresponds with increasing hunting pressure and the desire for isolation or separation from other hunters.

Seven of 343 hunters commented that there were too many hunters. Thirteen commented that there were not very many turkeys or they would like more turkeys. Five of 109 reports from the Boulder Mountains indicated that logging interfered with population distribution, habitat, or otherwise disturbed their hunt.

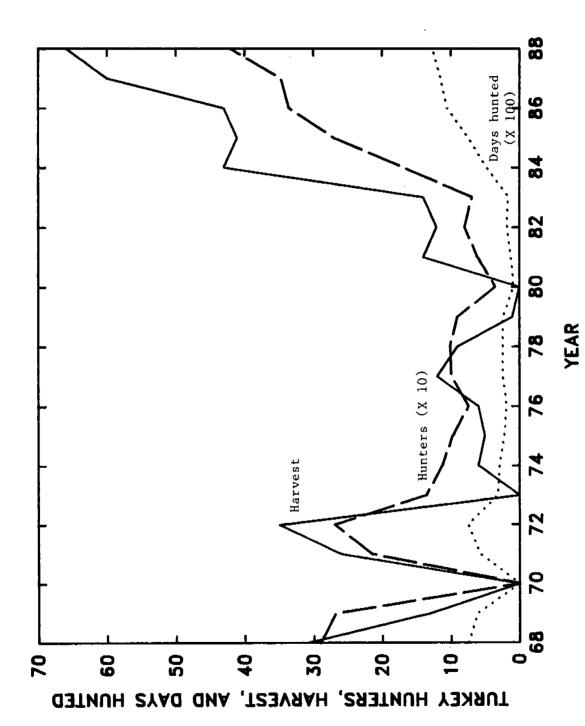


Figure 1. Spring wild turkey hunters, harvest, and days hunted, 1968-88.

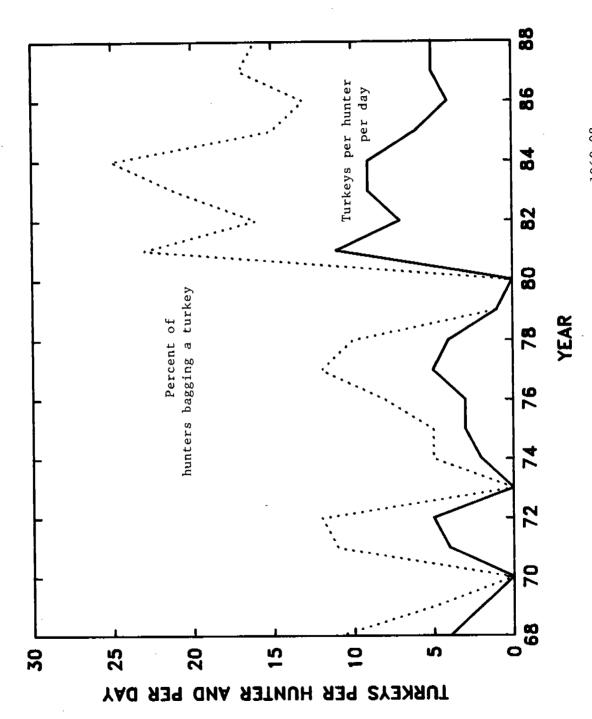


Figure 2. Spring wild turkey hunting success, 1968-88.

Table 1. Summary of the 1988 spring turkey season.

	Elk Ridge	East Zion	Zion	Boulder	der	LaSal	a.l	Beaver	Pine Valley Mixed Units STATE TOTAL	Mixed L	Jnits	STATE	TOTALS
Data	Rep't Calc	Rep't	Calc	Rep't	Calc	Rep't	Calc	Rep't Calc	Rep't Calc	Rep't	Calc	Rep't	Calc
Permits sold													ł
No hunts													68
Hunters afield	U	180	221	109	134	53	65	ပ	ပ	12ª	(15)	343	421
Hunter-days	ب	554	680	312	383	162	199			(31)	(38)		,267
Turkeys bagged	0	36	4	0	Ξ	6	Ξ	0	0	0	0		99
Percent success	S	20	1	۵	1	91	1	s	s	0	l		1
Turkeys bagged per	ш							ш	ш				
hunter-day	0	90.0		0.03		0.06		0	0	1	1	0.0	0.05
Reported crippling loss	SS												
(loss/100 bagged)	S	17	}	Ξ	ł	0	!	S	S	ļ	!	13	ł
Turkeys observed	ш	980	}	227	<b>¦</b>	156	1	ш	ш	32		1,366	1
Gobblers	¥	292	1	84	ł	49	1	∢	¥	œ	1	440	ł
Hens	S	592	ł	115	}	65	ŀ	s	S	15	}	778	ŀ
Unidentified	0	93	1	28	{	27	1	0	0	თ	1	148	ł
Number of hunters	z							z	z				
who saw turkeys		8	1	54	ł	37	1			-	ł	172	1
Percent of hunters													
who saw turkeys		42	ł	20	ł	20				·75		20	}

Projection factor = 490 permits sold/399 questionnaires returned = 1.2280701

( )Hunters hunted more than one area; data included in specific area hunted.

<sup>a</sup>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 (8-19), 5 of these were from E. Zion as their primary unit, 3 from the LaSals; East Zion (1-3), from Boulder; LaSal (1-4), from East Zion; Pine Valley (1-1), from Boulder.

<sup>b</sup>This area was closed during 1988 spring turkey season.

Table 2. Summary of turkey harvest statistics for spring gobbler seasons, 1967—88.

:	2	Hunters	Total	Hunter-days	Percent	Turkeys per	Percent of Hunters	Total
Hunting Unit	Year	Arield	Harvest	Atteld	Success	Hunter-day	Ubserving lurkeys	Permits
EAST ZION	1961	24	6	59	38	0.15	28	
	1968	130	91	364	=	0.04	48	
	1969	7.7	4	210	9	0.02	35	
	1970			0 N	SEASON	Z		
	1971	901	14	272	12	0.05	38	
	1972	113	20	321	14	90.0	47	
	1973	43	0	96	0	0.00	14	
	1974	34	7	73	7	0.03	23	
	1975	29	က	42	∞	90.0	33	
	1976	31	ഹ	74	16	0.05	38	
	1977	47	9	117	13	0.05	48	
	1978	36	4	80	13	90.0	26	
	1979	35	-	95	4	0.01	נו	
	1980	35	0	84	0	00.0	17	
	1981	39	13	94	32	0.14	89	
	1982	62	=	134	18	0.08	07	
	1983	48	12	122	25	0.10	89	
	1984	108	30	313	27	0.09	70	
	1985	129	24	368	19	0.07	9	
	1986	173	31	508	18	90.0	99	
	1987	153	40	200	56	0.08	74	
	1988	221	4	089	50	90.0	45	

Table 2. (continued)

		HUNTERS	lotal	Hunter-days	rercent	Jurkeys per	Percent of Hunters	otal
Hunting Unit	Year	Afield	Harvest	Afield	Success*	Hunter-day	Observing Turkeys	Permits**
	,	i	,	!	!	,		
BOULDER	1967	13	2	43	12	0.02	75	
MOUNTAINS	1968	134	15	330	01	0.02	33	
	1969	141	9	300	4	0.05	16	
	1970			0 N	SEASON			
	1971	23	_	64	4	0.02	13	
	1972	42	e	107	80	0.03	28	
	1973	22	0	25	0	0.00	9	
	1974	23	0	26	0	0.00	25	
	1975	91	_	34	7	0.04	<b>∞</b>	
	1976	12	0	25	0	0.00	10	
	1977	9	0	13	0	0.00	40	
	1978	91	_	33	0	0.00	14	
	1979	S	0	10	0	0.00	0	
	1980			0 N	SEASON			
	1981			0 N	SEASON			
	1982			ON	SEASON			
	1983	Q	_	7	20	0.17	40	
	1984	33	6	85	27	0.11	73	
	1985	73	7	187	10	0.04	46	
	1986	123	89	354	7	0.02	44	
	1987	105	=	363	7	0.03	40	
	1988	134	-	383	80	0.03	20	

Table 2. (continued)

Hunting Unit Year Affield Harvest Affield Success** Hunter-day Observing Turkeys Permits***  LASAL 1967 6 0 16 0 0.00 62  MOUNTAINS 1968 17 0 44 0 0.00 62  1970 17 1 1 34 6 0.03 29  1971 20 0 5E A S O N  1972 22 0 0 56 0 0.00 116  1974 20 0 66 0 0.00 116  1975 11 0 0 56 0 0.00 117  1976 24 4 52 0 0 0.00 116  1976 11 0 0 56 0 0.00 117  1978 24 4 52 0 0 0.00 114  1989 32 2 78 15 0 0.00 114  1980 12 1 20 16 0.00 114  1981 18 1 27 10 10 0.00 100 100  1983 12 1 27 10 10 0.00 100  1984 24 4 70 194 14 0.00 100  1985 72 10 194 14 10 0.00 100  1988 55 14 16 194 14 10 0.00 100  1988 57 11 199 119 119 119 119 119 119 119 119			Hunters	Fotal	Hunter-days	Percent	Turkeys per	Percent of Hunters	Total
1967         6         0         16         0         0.00           1968         17         0         44         0         0.00           1969         39         3         102         9         0.03           1970         17         1         34         6         0.03           1971         17         1         34         6         0.03           1972         50         3         129         7         0.03           1973         23         0         66         0         0.00           1974         20         0         66         0         0.00           1975         11         0         30         0         0.00           1976         8         0         25         0         0.00           1976         8         0         25         0         0.00           1976         34         0         7         0.03           1980         1         34         0         0         0.00           1981         18         1         50         6         0         0.03           1982         72         10	Hunting Unit	Year	Afield	Harvest	Afield	Success*	Hunter-day	Observing Turkeys	Permits**
1968       17       0       44       0       0.00         1969       39       3       102       9       0.03         1970       39       3       102       9       0.03         1971       17       1       34       6       0.03         1972       50       3       129       7       0.03         1973       23       0       66       0       0.00         1974       20       0       66       0       0.00         1975       11       0       36       0       0.00         1976       8       0       25       0       0.00         1977       24       4       53       15       0.07         1978       32       2       78       7       0.03         1980       34       0       74       0       0.03         1981       18       1       31       6       0.03         1982       12       1       0       0.00         1984       24       4       70       19       0.05         1986       51       4       192       7       0.0	LASAL	1961	9	0	16	0	0.00	33	
1969     39     3     102     9     0.03       1970     NO     SEASON       1971     17     1     34     6     0.03       1972     50     3     129     7     0.03       1973     23     0     66     0     0.00       1974     20     0     66     0     0.00       1975     11     0     30     0     0.00       1976     8     0     25     0     0.00       1976     8     0     25     0     0.00       1977     24     4     53     15     0.07       1978     34     0     74     0     0.03       1981     18     1     31     6     0.03       1982     18     1     50     6     0.02       1984     24     4     70     19     0.05       1985     72     10     194     14     0.05       1986     51     4     192     7     0.05       1988     65     11     199     16     0.06	MOUNTAINS	1968	17	0	4	0	0.00	62	
NO SEASON  17		1969	39	ო	102	σι	0.03	24	
17     1     34     6     0.03       50     3     129     7     0.03       23     0     53     0     0.00       20     0     66     0     0.00       11     0     30     0     0.00       24     4     53     15     0.07       32     2     78     7     0.03       34     0     74     0     0.03       18     1     31     6     0.03       12     1     27     10     0.05       12     1     27     10     0.06       74     4     70     19     0.06       72     10     194     14     0.05       74     6     218     9     0.03       74     6     218     9     0.03       74     6     218     9     0.06       74     6     218     9     0.06       74     6     218     9     0.06       74     6     218     9     0.06       74     6     218     9     0.06       74     6     218     9     0.06       74     6<		1970				EAS0	7		
50       3       129       7       0.03         23       0       53       0       0.00         20       0       66       0       0.00         11       0       30       0       0.00         24       4       53       15       0.07         32       2       78       7       0.03         34       0       74       0       0.03         18       1       31       6       0.03         18       1       50       6       0.02         12       1       27       10       0.10         24       4       70       19       0.06         72       10       194       14       0.05         51       4       192       7       0.05         74       6       218       9       0.06         74       6       0.03       0.06         72       10       194       14       0.05         74       6       218       9       0.06         74       6       0.03       0.03         74       6       0.03       0.03     <		1971	17	-	34	9	0.03	20	
23     0     53     0     0.00       20     0     66     0     0.00       11     0     30     0     0.00       8     0     25     0     0.00       24     4     53     15     0.07       32     2     78     7     0.03       34     0     74     0     0.03       18     1     31     6     0.03       12     1     50     6     0.02       12     1     27     10     0.10       24     4     70     19     0.06       72     10     194     14     0.05       51     4     192     7     0.02       51     4     192     7     0.06       65     11     199     16     0.06	,	1972	20	က	129	7	0.03	29	
20     0     66     0     0.00       11     0     30     0     0.00       8     0     25     0     0.00       24     4     53     15     0.07       32     2     78     7     0.03       34     0     74     0     0.03       18     1     31     6     0.03       12     1     50     6     0.02       12     1     27     10     0.10       24     4     70     19     0.06       72     10     194     14     0.05       51     4     192     7     0.02       54     6     218     9     0.06       65     11     199     16     0.06		1973	23	0	23	0	0.00	16	
11 0 30 0 0.00 8 0 25 0 0.00 24 4 53 15 0.07 32 2 78 7 0.03 34 0 74 0 .0.03  18 1 31 6 0.02 12 1 50 6 0.02 12 1 27 10 0.10 24 4 70 19 0.06 72 10 194 14 0.05 51 4 192 7 0.06 65 11 199 16 0.06		1974	20	0	99	0	0.00	וו	
8 0 25 0 0.00 24 4 53 15 0.07 32 2 78 7 0.03 34 0 74 0 0 0.00  N 0 SEASON  18 1 31 6 0 0.02 12 1 27 10 0.10 24 4 70 19 0.06 51 4 192 7 0.05 65 11 199 16 0.06		1975	11	0	30	0	0.00	33	
24     4     53     15     0.07       32     2     78     7     0.03       34     0     74     0     0.03       18     1     31     6     0.03       12     1     50     6     0.02       12     1     27     10     0.10       24     4     70     19     0.06       72     10     194     14     0.05       51     4     192     7     0.02       74     6     218     9     0.03       65     11     199     16     0.06		1976	80	0	25	0	0.00	14	
32 2 78 7 0.03 34 0 74 0 .0.00  N 0 S E A S O N  18 1 31 6 0.02 12 1 50 6 0.02 12 1 27 10 0.10 24 4 70 19 0.06 72 10 194 14 0.05 51 4 192 7 0.00 65 11 199 16 0.06		1977	24	4	53	15	0.07	45	
34 0 74 0 0.00  N 0 S E A S O N  18 1 31 6 0.03  18 1 50 6 0.02  12 1 27 10 0.10  24 4 70 19 0.06  72 10 194 14 0.05  51 4 192 7 0.02  65 11 199 16 0.06		1978	32	2	78	7	0.03	38	
NO SEASON  18 1 31 6 0.03  18 1 50 6 0.02  12 1 27 10 0.10  24 4 70 19 0.06  72 10 194 14 0.05  51 4 192 7 0.02  74 6 218 9 0.03  65 11 199 16 0.06		1979	34	0	74	0	00.0	7	
18     1     31     6     0.03       18     1     50     6     0.02       12     1     27     10     0.10       24     4     70     19     0.06       72     10     194     14     0.05       51     4     192     7     0.02       74     6     218     9     0.03       65     11     199     16     0.06		1980				EAS0			
18 1 50 6 0.02 12 1 27 10 0.10 24 4 70 19 0.06 72 10 194 14 0.05 51 4 192 7 0.02 74 6 218 9 0.03 65 11 199 16 0.06		1981	18	_	31	9	0.03	24	
12 1 27 10 0.10 24 4 70 19 0.06 72 10 194 14 0.05 51 4 192 7 0.02 74 6 218 9 0.03 65 11 199 16 0.06		1982	18	_	22	9	0.02	35	
24     4     70     19     0.06       72     10     194     14     0.05       51     4     192     7     0.02       74     6     218     9     0.03       65     11     199     16     0.06		1983	12	_	27	0L	0.10	30	
72     10     194     14     0.05       51     4     192     7     0.02       74     6     218     9     0.03       65     11     199     16     0.06		1984	24	4	70	19	90.0	88	
51 4 192 7 0.02 74 6 218 9 0.03 65 11 199 16 0.06		1985	72	10	194	7	0.05	42	
74 6 218 9 0.03 65 11 199 16 0.06	*	1986	51	4	192	7	0.02	45	
65 10 90 16 0.06		1987	74	9	218	σ	0.03	20	
		1988	92	Ξ	199	16	90.0	70	

Table 2. (continued)

	Year	Hunters Afield	lotai Harvest	Hunter-days Afield	Percent Success*	Turkeys per Hunter-day	Percent of Hunters Observing Turkeys	Total Permits**
REAVER	1971	7.7	^	54	α	0.04	30	
MOUNTAINS	1972	: 1	. 2	53	) EI	0.04	20	
	1973	17	0	34	0	0.00	-	
	1974	_	0	-	0	0.00	0	
	1975	Ŋ	0	7	0	0.00	0	
	1976	2	0	80	0	0.00	0	
	1977	4	0	14	0	0.00	0	
	1978	2	0	7	0	00.0	20	
	1979			0 N	SEASON	_		
	1980			0	SEASON	_		
	1981			0 Z	SEASON	_		
	1982			0 N	SEASON	_		
	1983			0 N	SEASON	_		
	1984			0 N	SEASON	_		
	1985			0 N	SEASON	_		
	1986			0 N	SEASON			
	1987			0 N	SEASON	-		
-	1988			0 %	SEASON	_		

Table 2 (continued)

Hunting Unit Year	Year	Hunters Afield	Total Harvest	Hunter-days Afield	Percent Success*	Turkeys per Hunter-day	Percent of Hunters Observing Turkeys	Total Permits**
PINE VALLEY	1971	23	4	92	15	0.04	70	
MOUNTAINS	1972	22	_	52	τς.	0.02	42	
	1973	17	0	38	0	0.00	7	
	1974	œ	_	23	14	0.05	43	
	1975	9	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	m	0	15	0	0.00	0	
	1980	0	0	0	0	00.0	0	
	1981	7	0	2	0	0.00	0	
	1982	0	0	0	0	0.00	0	
	1983	ന	0	ഹ	0	00.0	0	
	1984**	0 **	0	0	0	0.00	0	
	1985**	**	NO SEASON					
	1986**	**	NO SEASON					
	1987	ဆ	2	89	13	0.02	20	
	1988**	**	NO SEASON					

Table 2 (continued)

	1	Hunters	Fotal	Hunter-days	Percent	Turkeys per	Percent of Hunters	Total
Hunting Unit Year	Year	Afield	Harvest	Afield	Success*	Hunter-day	Observing Turkeys	Permits**
BLUE MOUNTAIN-		17	2	34	13	0.07	27	
ELK RIDGE		6	_	62	Q	0,02	26	
	1976	Ξ	0	23	0	0.00	33	
	1977	7	_	14	17	90.0	11	
	1978	12	2	39	18	90.0	36	
	1979	αο	0	17	0	0.00	0	
	1980			0 N	SEASON	_		
	1861			0 <b>Z</b>	SEASON	_		
	1982			0 Z	SEASON	_		
	1983			0 Z	SEASON	_		
	1984			O Z	SEASON	_		
	1985			o Ż	SEASON	_		
	1986			0 N	SEASON	_		
	1987			0 N	SEASON			
	1988			0 N	SEASON	_		

Table 2 (continued)

	II		Hunters	Total	Hunter-days	Percent	Turkeys per	Percent of Hunters	Total
1971       15       4        15         1972       25       5       89       18         1973       12       0       36       0         1974       9       0       36       0         1975       11       0       32       0         1976       4       1       17       25         1977       9       1       29       13         1978       3       0       11       0         1980       0       0       0       0         1981       1       0       0       0         1983       0       0       0       0         1984       4       0       0       0         1985       4       0       6       0         1986       12       0       0       0         1988       12       0       31       0         1988       12       0       31       0	Hunting Unit	Year	Afield	Harvest	Afield	Success*	Hunter-day	Observing Turkeys	Permits**
25     5     89     18       12     0     38     0       9     0     36     0       11     0     32     0       4     1     17     25       9     1     29     13       6     0     27     0       0     0     0     0       0     0     0     0       0     0     0     0       4     0     15     0       12     0     36     0       12     0     31     0	MIXED UNITS	1971	15	4	l	5	1	61	
12     0     38     0       9     0     36     0       11     0     32     0       4     1     17     25       9     1     29     13       6     0     27     0       0     0     0     0       0     0     0     0       0     0     0     0       4     0     15     0       12     0     36     0       12     0     31     0		1972	22	ഹ	89	18	0.05	50	
9 0 36 0 11 0 32 0 4 1 17 25 9 1 29 13 3 0 11 29 13 6 0 27 0 1 0 27 0 0 0 0 0 0 0 0 0 0 4 0 15 0 12 0 36 0 13 0 14 0 6		1973	12	0	38	0	0.00	0	
11     0     32     0       4     1     17     25       9     1     29     13       6     0     37     0       0     0     0     0       1     0     2     0       0     0     0     0       0     0     0     0       4     0     15     0       12     0     36     0       12     0     31     0		1974	6	0	36	0	00.0	12	
4     1     17     25       9     1     29     13       3     0     31     0       6     0     27     0       0     0     0     0       0     0     0     0       0     0     0     0       4     0     15     0       12     0     36     0       12     0     31     0		1975	=	0	32	0	00.00	22	
9 1 29 13 3 0 11 00 6 0 27 0 1 0 2 0 0 0 0 0 0 0 4 0 15 0 12 0 36 0 12 0 31 0		1976	4	-	17	25	0.07	100	
3 0 11 0 6 0 27 0 1 0 0 0 0 0 0 0 0 0 4 0 15 0 12 0 36 0 12 0 31 0		1977	6	-	59	13	0.04	20	
6 0 27 0 0 0 0 0 1 0 2 0 0 0 0 0 · 0 0 0 0 4 0 15 0 12 0 36 0 13 0 31 0		1978	က	0		0	0.00	29	
0 0 0 0 1 0 2 0 0 0 0 0 . 0 0 0 0 4 0 15 0 12 0 36 0 11 0 28 0		1979	9	0	27	0	0.00	20	
1 0 2 0 0 0 0 0 4 0 15 0 12 0 36 0 12 0 31 0		1980	0	0	0	0	0.00	Đ	
0 0 0 0 4 0 15 0 4 0 6 0 12 0 36 0 11 0 28 0		1981	-	0	2	0	0.00	100	
. 0 0 0 0 4 0 15 0 12 0 36 0 11 0 28 0		1982	0	0	0	0	0.00	0	
4     0     15     0       4     0     6     0       12     0     36     0       11     0     28     0       12     0     31     0	•	1983	0	0	0	0	0.00	0	
4     0     6     0       12     0     36     0       11     0     28     0       12     0     31     0		1984	4	0	15	0	0.00	33	
12 0 36 0 11 0 28 0 12 0 31 0		1985	4	0	9	0	0.00	67	
12 0 28 0 12 0 31 0		1986	12	0	36	0	0.00	99	
12 0 31 0		1987	=	O	28	0	0.00	0	
		1988	12	0	31	0	0.00	75	

Table 2 (continued)

Hunting Unit	Year	Hunters Afield	Total	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	14	310
	1969	267	13	612	ιΩ	0.02	22	276
	1970			0 Z	SEASO	Z.		
	1971	215	26	576	11	0.04	38	223
	1972	569	35	751	12	0.05	39	285
	1973	135	0	311	0	00.0	J.0	150
,	1974	112	Q	289	2	0.02	22	121
	1975	16	Ω.	219	S	0.03	59	103
	1976	74	9	185	∞	0.03	32	81
	1977	66	12	248	12	0.05	39	108
	1978	[0]	σ	246	<b>D</b>	0.04	42	116
	1979	06	_	237	***	0.03	œ	113
	1980	32	0	84	0	0.00	17	4
	1981	9	4	129	23	0.11	53	83
	1982	80	12	184	16	0.07	62	16
	1983	69	7	191	21	0.09	55	92
	1984	169	43	482	25	0.09	72	190
	1985	270	41	747	15	90.0	52	314
	1986	335	43	1,054	13	0.04	57	362
	1987	347	9	1,150	17	0.05	57	384
	1988	421	99	1,267	91	0.05	50	490
STATE TOTALS								
(1967–88)		3,314	448	9,788	1	1	(804)	3,984
STATE AVERAGES								
(1967-87)		145	19	426	13	0.04	38	175

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

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

\*\*\*Note 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 by proclamation.

Table 3. Date of kill, beard and spur length of turkeys harvested during Spring 1988.

w	Date		Spur
	of	Beard	Length
Hunting Unit	Ki11	Length	(Inches)
EAST ZION	4/30	4.00	0.25
	5/18	9.00	1.125
•	5/18	9.00	1.125
		5.00	1.00
	5/8	6.00	1.125
	5/5	4.00	
	5/5	4.00	
	5/14	7.00	0.25
	5/8	5.00	0.25
	5/14	10.00	0.75
	4/30	8.00	0.75
		6.00	0.75
	4/30	2.00	0.50
	5/3	7.00	1.00
	5/28	5.00	
•			0.75
	 5/20	9.00	1.00
		8.00	1.00
	5/7	6.00	<del></del>
	5/7	6.00	0.50
	5/3	7.00	<del></del>
	5/3	8.00	<del></del>
	5/14		<del></del>
	5/22	10.00	0.75
	5/8	9.00	0.50
	5/2*	4.00	0.50
	<del></del>	10.00	1.00
		3.00	
	4/30	6.00	
	4/30	8.00	0.375
	4/30	9.00	8.00
	5/22	5.00	
	4/30	9.00	
	4/30	6.00	0.875
LA SAL	5/2	6.00	1.00
	5/12	9.00	
	4/30		
	4/30	7.00	0.625
	4/30	7.00	0.023
	5/4	9.00	<del></del>
	5/19		0.50
	5/19 5/7	6.00	0.50
BOULDER	4/30	5.00	0.625
DOUBLE		00.8	0.625
	4/30	4.00	1.00
	4/30	8.00	0.50
	5/14	9.00	1.00
	5/6	5.00	0.625
	5/10	9.00	0.875
	5/12	6.00	0.25
	5/12	5.00	
	4/30	9.00	

<sup>\*</sup>Possible violation of season date, sex, or weapon. All successful turkey hunters reported using shotguns except one who did not report. Four hunters did not report date of kill, beard length or spur length.

Table 4. Statewide summary of fall wild turkey harvest statistics, 1963-88.

					ć	-			% Hunters
Year	Sold	Afield	Afield	Bagged	Success**	lurkeys/ Hunter-Day	Limphiang tussy 100 Bagged	Observed	Upserving Turkeys
1963	297	248	1	75	30	ł	15	. 1	48
1964	229	211	362	8	38	0.22		1,158	9
1965	214	207	406	20	24	0.12	æ	730	73
<b>1966</b> *	192	187	471	43	23	60.0		756	36
1967	146	135	405	40	30	01.0		748	48
1968*	368	344	883	183	38	0.21	75	2,321	54
1969	223	210	549	36	=	0.06	19	466	17
1970	197	174	418	28	24	0.14	φ,	564	31
1971	184	174	444	9	21	0.14	∞	451	28
1972	124	138	303	12	7	0.04	10	173	21
1973***	1	1	1	ŀ	1	1	1	įl	1
1974	53	56	79	m	12	0.04	33	83	38
1975	58	46	115	7	15	90.0		57	26
1976	68	26	136	15	27	0.11	7	182	32
7261	09	53		7	15	90.0	0	48	18
1978*	102	88	223	7	6	0.03	33	335	38
1979	46	36	71	က	6	0.05	0	61	19
1980	43	35	69	=	32	0.16	38	127	44
1981	63	55	114	15	22	0.11	26	141	32
1982	20	쫎	136	=	23	0.08	10	185	47
1983	19	49	112	15	28	0.13	0	303	49
1984	97	98	193	28	32	0.14	14	380	49
1985***	1	1	1	ł	!	!	1	1	ł
1986***	{	;	;	;	1	1	!	1	1
1987***	1	;	1	!	1	-	1	1	!
1988***	}	1	!	l	1	1	1	1	1
T01ALS (1963-84)	2,801	2,538	5,486	746	(470)	0.14	(310)	9,084	(764)
AVERAGES									
(1963-84)	133	121	261	36	22	0.14	35	433	36
		-			-				

Mountains a one-bird limit; from 1969 through 1972, all areas had a two-bird limit. Hunter success \*Some hunters hunted more than one area or failed to designate areas hunted. This accounts for the difference between totals given above and combined tables of separate units in Tables 5, 6 and 7. \*\*During 1968, the Boulder Mountain and East Zion units had two-bird season limits and the LaSal was based on the number of successful hunters rather than total turkeys bagged. \*\*\*Closed Season

1988.
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County	₩	f Ad	Ž	Brood	Ad Yng		W/o Yng	Adults	Yng	Yng 100 Ad	wen. Miles	Veh. Hor	Veh. Horse Walk Total	100 Hr
Northern Region	ŧ	1	2	5			2	2		2	3		5	
Box Elder														
Cache														
Davis														
Morgan					Z	1 O N	APPLI	CABL	ш					
Rich														
Summit														
Weber														
REGIONAL TOTALS			}											!
Central Region														
Juab														
Salt Lake														
Sanpete					z	1 0 N	APPLIC	CABL	ш					
Tooele														
Utah														
Wasatch				ì										
REGIONAL TOTALS														
Southern Region														
Beaver														
Garfield	1	1	ł	1	1	;	1	1	1	ţ	}	' 	1	
Iron	ł	1	!	<b>;</b>	1	1	1	1	1	l	1	}	 	1
Kane	1	1	ł	ł	!	1	1	i	!	!	1	!	} }	1
Millard	1	1	}	}	<b>¦</b>	}	1	1	l	!			} } !	1
Piute	ł	ł	1	1	ł	1	ł	!		!	1		   	1
Sevier		1	1	1	ł	}	ł	1		!	1	1	   	}
Washington	}	1	1	1		1		ł	}	!	}	}	<del> </del>	
Wayne	1	ł	1		1	1	1	1	1	1	1			1
REGIONAL TOTALS	1	1	1			1	1	1	1		!	!		1
Northeastern Region	티													
Daggett														
Duchesne						~	NOT A	РРLI	CABL	ш				
Uintah	}													
REGIONAL TOTALS														
Southeastern Region	티													
Carbon	1	1	1	<b>!</b>	1	1	1	}	<b>!</b>	!	]		:	1
Emery	ł	ł	}	<u> </u>	-	1	1	!	!	ł	1		} !	!
Grand (LaSal Mt)	_	-	<u></u>	7.00	Ŋ	4	6	12	48	320	1	¦	-	ŀ
San Juan		-	6	9.00	1	1	ı	-	6	006	1	1		1
REGIONAL TOTALS	2	2	92	8.00	٦Đ	41	6	16	27	356	-		}	1

# **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 1988. In 1988, the number of birds present on active dancing grounds was substantially greater than in recent year (Table 1.). Two grounds, White's Valley and North White's Valley, which had been inactive for several years prior to 1987 were active again in 1988. It appears sharp-tailed grouse have made a mild recovery. Concurrent with the upswing in sharp-tailed populations has been a succession of mild winters. Since the catastrophic winter of 83-84, all winters have been normal or milder than normal. This certainly must be a factor in the population resurgence (Grandison 1988 personal communications).

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 entered into CRP. This may be benefitting sharp-tailed grouse populations by providing undisturbed nesting cover. The value of CRP to wildlife in Utah is being studied.

We have almost no 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. Since that time, we have not recognized any sign of significant recovery. Habitats in all these areas remain marginal. Land use patterns have not shown any sign of reversing the trend of gradual loss of habitat (Grandison 1988 personal communication).

Table 1. Summary of sharp-tailed grouse dancing ground counts, 1976-88.

		Dancing Ground													
County	9€	Name	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Box Elder		West Hills #1 (located 1977)		12	ł	12	က	12	0	12	0	0	1	0	0
	2.	West Hills #2 (located 1977)		7	1	ო	_	0	0	7	o	8	4	40	33
	ω.	West Hills #3 (located 1977)		13	}	0	0	0	0	0	0		9	0	0
	4	Hunsaker's Field (located 1977)		13	16	ო	0	0	0	0	0	0	18	0	ო
	Ŋ.	Whites Valley (located 1977)		12	I	0	0	0	9	Ç	0	7	0	9	7
	ø.	North Whites Valley (located 1977)		10	15	1	0	0	0	0	0	0	1	18	=
	7.	Pocatello Valley #1 (located 1978)			7	4	-	σ	<b>1</b> 6*	9	7	0	ł	1	m
	80	Pocatello Valley #2 (located 1978)			52	ო	9	01	0	80	ო	თ	20	20	91
	ο,	Pocatello Valley #3 (located 1978)			4	0	0	0	0	0	0	0	1	1	}
	10.	Pocatello Valley #4 (located 1978)			9	0	0	0		0	0	0	ı	1	1
	=	Ag. Station						ო	0	0	0	0	!	ł	1
	12.	Microwave Tower (located 1987)											9	9	7
مامدي	-	Renkhood Woll (relocated 1975)	ح	œ	~	^	٥	c	c	!	ŀ	1	ł	<b> </b>	}
	: ,		, ,	, ,		ı		. L	, ,						
	; ;	Baxter Ridge (relocated 19/5)	>	>	ł	¦	<b>•</b> 73	Ω	٠,			!	ŀ		l <sup>•</sup>
	w.	Crow Mtn. #1 (located 1979)			0	_	4	Q	ო	1	1	ţ	<b>!</b>	!	0
	4.	Crow Mtn. #2 (located 1979)				9	0	വ	<b>O</b>	<b>!</b>	}	!	}	1	0
	ņ	High Creek (located 1981)						7	ł	<b>¦</b>	1	ł	ł		0
Morgan	<u>-</u>	Cottonwood #1 (located 1975)	0	7	9	m	1	;	ł	}		}	l	1	ł
,	2.	Cottonwood #2 (located 1975)	σ	9	16	22	1	1	1		1	!	1	1	1
	ω	Deep Creek #2					4	1	ł	1	<b>!</b>		{	1	i
•															
Weber	<del>-</del>	Monastery (located 1969)	9	Active	Active	,e 3	0	0	0		-	!	1		1
Total grounds counted	luds (	counted	2	10	6	15		17	15	=	2	Ξ	9	ω	12
Total grouse counted	ise c	ounted	34	104		71	54	21	31	28	വ	59		8	80
Average nu	mber	Average number of grouse/ground	6.8	10.4		4.7	πú	3.4	2.1	2.5	2.5	2.6		11.3	6.7

\*Counts for Pocatello Valley #1 and #2 were combined.

# **PTARMIGAN**

## SUMMARY

The white-tailed ptarmigan (<u>Lagopus leucurus</u>) was introduced into the Uinta Mountains of northern 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.

Surveys on the ptarmigan population continue to document habitat expansion. 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 years of survey data are located in Tables 1 and 2.

The 1986-87 and 1987-88 winters were relatively mild in northern Utah.

No spring survey of breeding territories was made in 1988.

Brood surveys were made in August 1987, on Flat Top Mountain in Henry's Fork and Joulious Creek. Six brood were observed. Average brood size was 3.33 young.

#### Hunter Success

Twenty-eight hunters bought \$2.00 permits to hunt ptarmigan in Utah in 1988 (Table 3). An estimated 15 hunters actually pursued ptarmigan and 22 birds were killed. Hunter success was 1.47 birds bagged per hunter-day indicating good production last year and that populations are doing fine.

Some of the hunters hunted in areas where it was unlikely they would see ptarmigan. These were not included in the total hunters afield. 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), 1978-88.

		(6/12-19)	(6/18-24)	7 (71-21/9)	(6/12-14) (6/16-	(6/16-17)		(6/18-19)				
County	Location	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	. 188
Summit	Summit Lake Blanchard		;	;	7							
Duchesne	Duchesne Painter Basin	102			•						•	
Duchesne	Duchesne Gilbert Basin	7					もる	* ,	\$ 4	C4		
Duchesne	Duchesne Atwood Basin			•			: Z (	,	: <b>z</b> c	: Z (		
Duchesne	Duchesne Yellowstone River	ه ت		~			, ш "	٠	, ш _	, ш —		•
Summit	Henry's Fork		4	•					<b>يا نـ</b> نـ	6		
Summit	Summit Flat Top Mtn.				2		0	•	۵ ۵	۵ ۵	m	
Summit	Beaver Creek		m	; •	· · · · · · · · · · · · · · · · · · ·	0						
Summit	Summit Smith's Fork	-			· · · · · · · · · · · · · · · · · · ·			•	٠		•	
Uintah	Uintah Leidy Peak		, ,	60			A					er jegen

Three territorial males were yearling birds, the result of successful reproduction by released birds in 1976. Two were spring-released birds and two were fall-released.

are well represented in the population while only two September released birds have been located. Recruitment from the 1976 and 1977 nesting seasons was evident in the 1978 population. 2An additional 4 males and I female were located. Birds from the June 1976 transplant

<sup>3</sup>A sighting of ptarmigan was reported by a hunter in October 1979. Division Biologists reported droppings at the base of Leidy in the willow on June 25, 1981.

4Excessive snow cover precluded access to trail—heads during the June breeding period.

Table 2. Ptarmigan brood inventory, 1979-88.

Area:				DATE						
Statistics	8/14-24/79	8/17-29/80	8/18-31/81	8/17-30/82	8/23-30/83	8/26-28/84	8/14-22/85	98/8	8/87	8/25-31/88
Painter Basin										
<b>u</b> .	7	7	12	၁0	5 <b>q</b>		m	ı	İ	
mean brood	3.29	4.71	3.67		4.50	1	1	1	1	
young/100 adult hens	329	171	314		450	1	1	ł	ł	
hens w/o broods	0	٥	7		0	ł	ı	I	ŀ	
adult males	2	0	14 ·		0	1	1	1	ł	
Henry's Fork										
<b>C</b>	-	0	4	o	0	0	1	4	cr)	
mean brood	4.00		4.50	,	•	۱ ۱	1	3.75	4.00	
young/100 adult hens	400		450			ŀ	}	375	217	233
hens w/o broods	0		0			1	1	0	m	
adult males	-		0			-	ł	1	1	
Yellowstone										
, <b>c</b>	0	4	4		ł	ŀ	;	ŀ	1	
mean brood			4.50	4.25		1	<b>!</b>	ļ	ı	
young/100 adult hens			450	1		1	ı	ł	1	
hens w/o broods			0	1		ļ	ı	ł	1	
adult males	ļ		0			!	1	1	1	
SIBLET S FOLK	•	ı	,	•	•					
c	0	0	0	7e		1	}	_		
mean brood	0				3.50	9.00	1	}	9.00	
young/100 adult hens	0				350	300	ŀ	1	120	
hens w/o broods	0				0	<b>,-</b> -	1	1	4	
adult males	2				0	0	1	1	ŀ	
Atwood Basin	,									•
c	_	_		1	1	ł	1	ŀ		
mean brood	4.00	5.00	ŀ	1	1	ŀ	1	1		
young/100 adult hens	400	200	1	1	}	1	ı	ŀ		
hens w/o broods	0	0	1		1	1	1	1		
adult males	က	0	1	!	1	ł	ł	}		

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Statistics   Sta	tistics	1 1	l i	30/83 8/26-2	8/84 8/14-22	-	8/87 8/25	-31/88
hens Soo Soo Soo hens Soo Soo Soo Soo Soo Soo Soo Soo Soo So								
Hens Son 6.00 6.00 6.00 6.00 6.00 6.00 6.00 6.0	Flat Top Mountain							•
6.00 6.00 1 4.00 0 0 0 0 0 0 0 0 0 0 0 0	e		٠				_	~
2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	mean brood			9.00			6.90	4.33
2 4.0 4.0 5.00 5.00 5.00 6.0 7.1 1.1 1.1 1.1 1.1 1.1 1.1 1.1						•	906	433
2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	book all broods			_			0	9
1 4.0 400 0 0 0 5.00 0 0 0 0 0 0 0 0 0 0 0 0 0	adult males						0	9
1 4.0 400 0 0 5.00 0 0 0 0 0 0 0 0 0 0 0 0 0 0	13++10 F Fork - Black's Fork			•				
ault hens  2							l	
bod but hens  3							ŀ	
abult hens and abult hens oods  abult hens bod oods  abult hens bod oods  abult hens oods  abult hens oods  abult hens oods  abult hens oods	voung/100 adult hens						1	
ault hens oods  ault hens bord of the service of th	hens w/o broods						1	
ault hens 400  ault hens 500  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods	adult males		,				1	
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ault hens 400  ault hens 500  ault hens oods  ault hens oods  ault hens oods  ault hens oods  ault hens oods	5	_		ı	I		ŀ	
ault hens 400	mean brood	4.0		l	1		1	
3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	young/100 adult hens	400		1	ł		1	
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3 2 5 5.00 5.00 5.00 5.00 5.00 5.00 5.00	Gilbert Basin							
bods bods bods bods bods bods bods bods	en	2		!			1	:
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dult hens  bods  dult hens  bods		0						
broods  od  data thens  broods  od  od  od  od  od  broods  les  data thens  broods	Samuel's Draw							
od broods	<b>-</b>			{	1		1	
0 adult hens     400     —       broods     0     —       1es     0     —       0     —     —       od     —     —       broods     —     —	mean brood		4.00	1	1		1	
broods  les  od  od  broods	young/100 adult hens		400	i	l		I	
od broods	hens w/o broods		0	1	1		1	,
od O adult hens broods	adult males		0		1		1	
sdult hens roods	Leidy Peak						•	
adult hens roods							2	
	mean brood						7 000	
5000	young/100 adult hens				•		967	
	nens W/o Droods						, ,	

Table 2. (continued)

Area:				DATE						
Statistics	8/14-24/79 8/17-29/80	8/17-29/80	8/18-31/81	8/17-30/82	8/23-30/83	8/26-28/84	8/14-22/85	8/86	8/87 8/25-31/88	5-31/88
East F. Black's Fork										
c		0							1	
mean brood									ı	
young/100 adult hens						•			}	
hens w/o broods									;	**
adult males									1	
Joulious Creek										'
c									_	0
mean brood									1.00	0.00
young/100 adult hens									300	000
hens w/o broods									0	<b>4</b> f
adult males									0	0
T0TAL										,
c	12a	ոյե	70						7	Ġ
mean brood	4.50	4.73	4.00	4.20		6.00			3.86	3.33
young/100 adult hens	450	473	364						236	333
hens w/o brood	0	0	2						7	19f
adult males	18	0	14						0	0
Total birds observed	84	63	116		20		18	19	47	45
										ı

aNot included is observation of 2 hens with brood from Leidy Peak, some 43 miles distant from release site.

<sup>b</sup>Considerably more time spent this year than in previous years.

CAfter 4 days of searching.

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

<sup>e</sup>Flat Top Mountain between Henry's Fork and Smith's Fork.

fMixed adults

<sup>n</sup>Number of broods.

Table 3. Summary of ptarmigan harvest statistics, 1982-88.

								· n	% Hunters	% Hunters Immatures
Par	Permits P	Hunters Afield	Hunter-days Afield	Ptarmigan Bagged	Birds/ Hunter	Ptarmigan/ Hunter-Day	Hunters Hunter-days Ptarmigan Birds/ Ptarmigan/ Crippling Loss/ Ptarmigan Observing· Per Afield Afield Bagged Hunter Hunter-Day 100 Bagged Observed Ptarmigan 100 Adults	Ptarmigan Observed	Observing Ptarmigan	Per 100 Adults
982	84	12	· 8	0	0.0	9.0	: , <b>-</b>	0		
983	31	13	12	7	1.08	0.67	φ	25	30	
384	28	2	52	36	1.80	<u>4</u>	•	1	1	
1985	55	2	13	7	0.70	0.54	7	6	4	
986	49	7	21	œ	0.57	0.36	· 🕁	œ	22	
387	45	6	6	œ	0.89	0.89	ŀ	ł	1	,
88	28**	75	15	22	1.47	1.47	1	29	1	4.5(11)

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

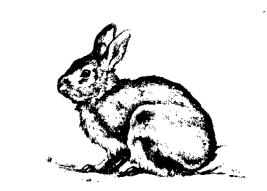
# RABBITS AND HARES

### **SUMMARY**

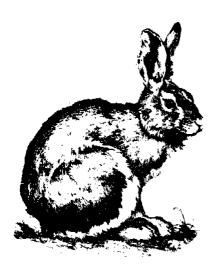
Cottontail populations again increased from a record low in 1985 and are above the 10 year average. An increased breeding population for 1988 was indicated by the 1987 harvest statistics.

Summer roadside counts again indicated an increased population density statewide. Harvest statistics indicated significant improvement in hunter success, with a total harvest increase of 36 percent. Harvest data from mail questionnaires indicate average hunter success while field bag checks on opening weekend indicated above average hunter success.

## **Cottontail Rabbits**



## **Snowshoe Hares**



The 1988 snowshoe hare hunting season indicated improved populations but they were still below the 10 year average.

Harvest statistics for 1988 indicated increased hunter participation but below average hunter success. 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 1988 are shown in Table 1 of this section. The trend of cottontails observed per mile and young per 100 adults since 1978 is shown in Tables 2 and 3, respectively. Indices for 1988 compared to 1987 and the 10-year average follow:

		Percent	change from
	<u>1988</u>	<u>1987</u>	<u>Average</u>
Total miles driven	1,472	-5	-24
Total cottontails counted	825	+58	+13
Cottontails observed per mile	0.56	+65	+60
Young observed per 100 adults	67	-30	-29

An increased breeding population for 1988 was again indicated by 1987 harvest statistics for the third year in a row. The cottontail per mile index increased again and was well above average. However, production was 30 percent below 1987 and the average.

#### <u>Harvest</u>

#### Hunter Questionnaire

Results of the 1988 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 since 1981 are found in Tables 5-7. Trends of statewide harvest statistics are found in Table 8 and Figure 2. Results of the 1988 season compared to 1987 and the 21-year average follow:

		Percent	change from
	<u>1988</u>	<u> 1987</u>	<u>Average</u>
Cottontail hunters	24,076	+18	-4
Cottontail harvest	150,386	+36	8
Hunter-days afield	97,190	+26	-3
Cottontails per hunter-day	1.55	+8	+7
Cottontails per hunter	6.25	+15	+5

Total hunters and effort increased again in 1988. Total harvest again increased significantly from 1987. Total harvest was 8 percent below average but success was 7 percent above average. Harvest data indicate a year of average populations of cottontails. The mild winters since 1984 may have influenced increased rabbit populations statewide. A population crash was apparent in the spring of 1984, and has been confirmed by the 1984, 1985 and 1986 harvest data. Populations are recovering rapidly. The winters of 1985-86, 1986-87, and 1987-88 have not been harsh.

### Field Bag Checks

Results of the survey for 1988 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 1988 field bag check data to 1987 and the 10 year average.

	<u>1988</u>	<u>Percent</u> 1987	change from Average
Total hunters checked	386	+302	+151
Total hours hunted	1,121	+513	+185
Cottontails per hunter			
(complete hunts)	2.69	+60	+44
Cottontails bagged per 100 hours	70	+11	+10
Hours per hunter-day			
(complete hunts)	3.2	-18	+3
Hours per cottontail bagged (complete hunts)	1.2	-48	-45

This data is consistent with mail questionnaire data. Data from the Central Region was not obtained.

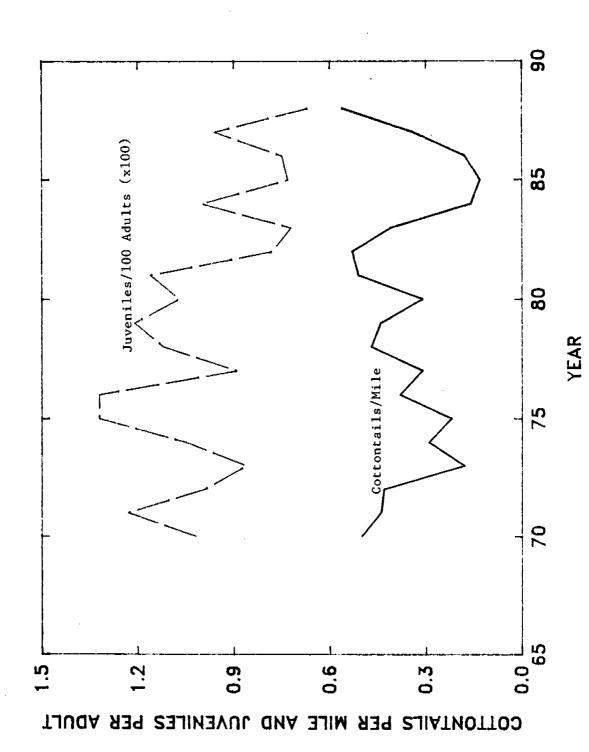


Figure 1. Cottontail rabbit population indices trend.

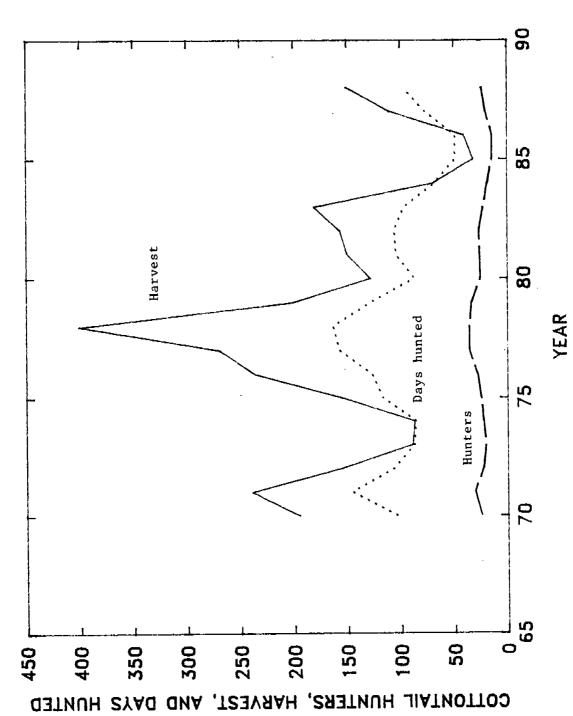


Figure 2. Cottontail rabbit harvest trend.

Figure 3. Cottontail rabbit harvest trend.

Table 1. Cottontail rabbit summer inventory summary, 1988.

Region and	Miles		Rabbit	s Observed		Young Per	Rabbits
County	Driven	Adults_	Young	<u>Unclass.</u>	Total	100 Adults	Per Mile
Northern Region							
Box Elder							
Cache							
Davis							
Morgan							
Rich							
Summit							
Weber	<del></del>						
REGIONAL TOTALS		<del></del>					
<u>Central Region</u>							
Juab	37	15	3	2	20	20	0.54
Salt Lake							
Sanpete	32	8	7	0	15	88	0.47
Tooele	60	5	6	0	11	120	0.18
Utah							
Wasatch						<del></del>	
REGIONAL TOTALS	129	28	16	2	46	57	0.36
Southern Region							
Beaver	90	5	0	0	5	0	0.06
Garfield						·	
Iron							
Kane	102	45	67	0	112	149	1.09
Millard	232	10	11	1	22	110	0.09
Piute							
Sevier					~-		
Washington	90	16	16	0	32	100	0.36
Wayne	90	9	22	0	31	244	0.34
REGIONAL TOTALS	604	85	116	1	202	136	0.33
Northeastern Region							
Daggett	153	98	29	3	130	30	0.85
Duchesne	142	148	57	6	211	39	1.49
Uintah	84	23	39	44	106	170	1.26
REGIONAL TOTALS	379	269	125	53	447	46	1.18
Southeastern Region							
Carbon	90	1	5	31	37	500	0.41
Emery	90	20	10	1	31	50	0.34
Grand	90	0	4	5	9	<del></del>	0.10
San Juan	90	35	17	1	53	49	_0.59
REGIONAL TOTALS*	360	56	36	38	130	64	0.36
STATE TOTALS	1,472	438	293	94	825	67	0.56

Table 2. Summary of cottontail rabbits observed per mile during summer inventory, 1978-88.

County Northern Region Box Elder	1978	1979	1980	1981	1982	1983	1084	1005	1986	1987	1988	1078_87
Northern Region Box Elder	2							722				200
Box Elder												
	0.29	0.33	1	0.37	0.01	1	1	ł	0.02	0.03	ł	
Cache	0.05	}	1	1	1	ł	}	1	1	I	1	
Davis	ł	1	1	1	I	1	I	ŀ	l	ł	1	
Morgan	0.10	}	ł	1	ł	1	ł	ł	ł	1		
Rich	0.47	0.30	0.11	0.13	91.0	ł	ł	1	0.05	ł	ļ	
Summit	1	ł	ł	l	1	0.18	ł	ł	1	ł	1	
Weber	I	ł	ł	ł	1	1	1	ļ	i	ļ	1	
REGIONAL TOTALS	0.30	0.32	0.11	0.26	90.0	0.18	1	!	0.02	0.03	1	0.16
Central Region												
Juab	0.19	0.23	0.29	1.12	0.38	1	0.00	0.00	0.05	0.00	0.54	
Salt Lake	ŀ	1	1	ł	}	l	1	ł	ł	ł	1	
Sanpete	0.86	1.15	1.06	1.29	0.78	0.57	l	ł	ł	ł	0.47	
Tooele	0.21	0.51	0.26	0.13	0.10	ł	0.05	0.0	0.0	0.02	0.18	
Utah	1	1	!	ł	ł	1	ł	1	ł	ł	1	
Wasatch	1	- 1	1	1	1	ľ	ł	}	}	1	I	
REGIONAL TOTALS	0.43	0.64	0.54	0.85	0.43	0.57	0.01	0.00	0.01	0.02	0.36	0.35
Southern Region												
Beaver	0.22	0.22	90.0	0.19	0.12	0.04	0.01	0.03	0.10	0.04	90.0	
Garfield	0.13	0.15	ł	1	0.27	0.25	1	90.0	0.13	1	1	
Iron	99.0	0.45	0.45	1	0.18	0.38	0.27	0.33	0.53	0.26	I	
Kane	0.23	0.34	1	0.69	ł	}	ł	0.52	0.47	0.97	1.09	
Millard	0.42	0.52	0.18	0.56	0.28	0.16	0.04	0.02	0.08	0.09	0.0	
Piute	0.01	0.02	ł	0.10	0.13	0.03	1	1	90.0	0.02	1	
Sevier	0.90	0.55	0.27	0.83	0.27	0.23	1	1	1	ŀ	}	
Washington	0.16	0.35	0.10	0.24	0.32	0.38	I	0.23	0.12	0.12	0.36	
Wayne	0.48	0.56	0.54	0.49	0.69	!	0.80	}	0.20	0.24	0.34	
REGIONAL TOTALS	0.35	0.37	0.22	0.45	0.29	0.19	0.18	0.19	0.24	0.27	0.33	0.28
Northeastern Region												
Daggett	2.77	1.58	0.40	0.32	0.45	0.58	0.22	0.12	0.22	99.0	0.85	
Duchesne	1.42	0.24	0.42	1.78	2.28	0.58	0.28	0.13	0. 4	98.0	1.49	
Uintah	1.22	0.53	0.27	0.48	1.97	2.97	0.11	0.00	0.05	0.36	1.26	
REGIONAL TOTALS	1.75	0.84	0.36	0.81	1.46	1.21	0.21	0.09	0.25	0.65	1.18	0.76
Southeastern Region												
Carbon	0.12	0.12	0.15	0.12	0.10	0.11	ł	0.05	0.08	0.33	0.41	
Emery	0.21	0.28	0.16	0.41	0.18	0.23	0.18	0.20	1	0.40	0.34	
Grand	0.33	0.21	0.1	0.32	0.67	0.15	0.13	0.67	90.0	ł	0.10	
San Juan	0.31	0.20	09.0	0.42	1.26	0.40	ł,	0.14	0.37	0.29	0.59	
REGIONAL TOTALS	0.23	0.21	0.30	0.36	0.58	0.25	0.17	0.13	0.17	0.38	0.36	0.28
STATE TOTALS	0.47	0.44	0.31	0.51	0.53	0.41	0.16	0.13	0.18	0.34	0.56	0.35

Table 3. Summary of cottontail rabbits young per 100 adults, 1978-88.

												•
County	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1978-87
Northern Region												
Box Elder	126	100	1	11			1	1	0	22	!	
Cache	}	1	1		1	ł	1	1			1	
Davis	}	}	1	}	}	1	1	1	}	ł	1	
Morgan	1	1	ł	1,	1	ŀ	1	ŀ	1	ł	ł	
Rich	130	9	<i>L</i> 9	43	63	29	1	1	20	ł	ł	
Summit	1	}	l	ł	ł		ł	1	1	1	l	
Weber	ł	ł	1	ł	¦	ł	ł	ł	ł	ł	1	
REGIONAL TOTALS	137	85	29	7.1	63	29	1.	-	20	25	-	29
Central Region												
Juab	4	. 13	78	102	53	1	0	0	0	0	20	
Salt Lake	ł	;	ł	ł	1	1	ł	1	1	1	ł	
Sanpete	217	312	352	197	509	225	1	1	1	1	88	
Tooele	125	100	וע	200	88	ł	ł	0	0	90	120	
Utah	1	ł	I	1	1	l	1	1	1		ł	
Wasatch	!	-	ł	1	1	!	<b>!</b>	1	1	!	1	
REGIONAL TOTALS	161	167	194	147	140	225	0	0	0	100	57	113
Southern Region												
Beaver	5	63	4	55	83	33	0	0	22	0	0	
Garfield	64	250	!	ł	38	120	1	33	38	ŀ	ł	
Iron	33	44	23	1	27	35	4	82	75	ļ	}	
Kane	26	82	1	901	1	ł	ł	100	7	111	149	
Millard	88	190	96	170	2	125	75	200	170	114	110	
Piute	1	1	ł		ł	200	ł	1	ł	1	ł	
Sevier	147	171	320	ł	33	و	1	1	ł	1	1	
Washington	400	8	ł	123	150	18	ł	73	133	175	901	
Wayne	282	214	308	287	343	ł	380	ł	360	2,100	244	
REGIONAL TOTALS	98	139	114	184	145	82	215	82	100	137	136	130
Northeastern Region												
Daggett	86	123	28	104	140	99	33	46	136	116	30	
Duchesne	167	200	19	45	37	91	22	15	56	24	39	
Uintah	153	82	160	176	44	9/	233	0	100	264	170	
REGIONAL TOTALS	125	118	73	. 62	48	63	42	31	58	74	46	70
Southeastern Region												
Carbon	118	230	133	83	99	4	ł	}	150	292	200	
Emery	Ξ	52	70	76	43	75	217	516	1	72	20	
Grand	11	20	250	137	148	150	33	300	300	!	}	
San Juan	35	30	89	105	72	43		43	19	47	49	
REGIONAL TOTALS	נו	46	79	103	82	54	156	88	69	100	64	85
CTATE TOTALE		ינינ	50.5	:	1							

Table 4. Summary of cottontail rabbit hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Cottontails	Cottontails/	% of -	% of
County	Size*_	Afield	Bagged	<u>Hunter-day</u>	Pressure	Harves
<u>Northern Region</u>						
Box Elder	224	10,235	18,215	1.78	10.53	12.11
Cache	15	1,118	417	.37	1.15	.27
Davis	9	367	183	.50	.37	.12
Morgan	9	200	300	1.50	.20	. 19
Rich	28	851	1,586	1.86	.87	1.05
Summit	22	1,268	1,168	.92	1.30	.77
Weber	19	1,035	634	.61	1.06	.42
REGIONAL TOTALS	326	15,077	22,506	1.49	15.51	<u>14.96</u>
<u>Central Region</u>						
Juab	119	5,977	9,099	1.52	6.15	6.05
\$alt Lake	20	1,419	751	. 53	1.46	. 49
Sanpete	77	3,472	5,626	1.62	3.57	3.74
Tooele	262	15,010	20,636	1.37	15.44	13.72
Utah	216	12,472	12,956	1.04	12.83	8.61
Wasatch	15	1,402	1.385	.99	1.44	.92
REGIONAL TOTALS	709	39,754	50, <u>45</u> 7	1,27	40.90	33.55
<u>Southern Region</u>						
Beaver	14	717	1,035	1.44	.73	.68
Garfield	6	450	634	1.41	. 46	. 42
Iron	18	1,469	2,320	1.58	1.51	1.54
Kane	9	901	1,268	1.41	. 92	.84
Millard	62	4,124	4,508	1.09	4.24	2.99
Piute	7	267	333	1.25	. 27	. 22
Sevier	43	2,370	3,439	1.45	2.43	2.28
Washington	21	1,369	2,871	2.10	1.40	1.90
Wayne	10	784	1,168	1.49	.80	.77
REGIONAL TOTALS	190	12,455	17,581	1.41	12.81	11.69
Northeastern Region	!					
Daggett	26	1,402	4,240	3.02	1.44	2.8
Duchesne	104	5,960	14,192	2.38	6.13	9.4
Uintah	116	8,565	19,852	2.32	8.81	13.20
REGIONAL TOTALS	246	15,928	38,285	2.40	16.38	25.4
Southeastern Region	<u>l</u>					
Carbon	71	5,443	6,995	1.29	5.60	4.6
Emery	64	5,008	8,899	1.78	5.15,	5.9
Grand	10	550	1,118	2.03	. 56	.7
San Juan	14	701	1,168	1.67	.72	7
REGIONAL TOTALS	159	11.704	18,182	1,55	12.04	12.0
Unknown Counties	19	2,270	3,372	1,.49	2.33	2.2
STATE TOTALS	1,649	97,190	150,386	1.55	100.00	100.00

<sup>\*</sup>Total hunter trips from questionnaire returns.

Table 5. Summary of cottontail rabbits bagged per hunter-day by region and county, 1981-88.

Region and				Ye	ar			
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region								
Box Elder	1.99	1.12	1.44	0.72	0.46	0.73	2.25	1.78
Cache	0.68	0.61	0.77	0.71	0.93	0.18	1.78	0.37
Davis	0.07	0.00	1.05	0.57	0.00	4.00	0.67	0.50
Morgan	1.46	0.95	1.65	1.19	0.55	0.05	1.17	1.50
Rich	1.87	1.03	2.28	1.61	0.52	0.74	1.33	1.86
Summit	1.21	0.87	1.44	0.17	0.35	0.29	1.44	0.92
Weber	1.10	0.70	0.56	0.68	0.13	0.69	2.83	0.61
REGIONAL TOTALS	1.65	1.00	1.43	1.76	0.40	0.57	2.14	1.49
Central Region				· · · · · · · · · · · · · · · · · · ·				
Juab	1.73	1.43	1.21	. 1.41	0.56	0.78	1.74	1.52
Salt Lake	0.71	1.07	1.74	0.88	0.21	1.06	1.26	0.53
Sanpete	1.44	0.86	1.12	0.48	0.35	0.60	1.25	1.62
Tooele	1.29	1.12	1.21	0.82	0.53	0.71	1.32	1.37
Utah	0.99	0.74	1.02	0.82	0.65	0.94	1.21	1.04
Wasatch	0.82	0.80	0.49	0.69	0.48	0.84	1.28	0.99
REGIONAL TOTALS	1.26	1.06	1.16	0.88	0.53	0.78	1.32	1.27
Southern Region								
Beaver	1.79	2.00	1.25	0.28	0.50	0.61	1.00	1.44
Garfield	1.05	1.86	0.98	0.84	1.00	1.25	0.71	1.41
Iron	1.03	0.77	0.80	1.48	0.60	0.87	0.44	1.58
Kane	0.81	1.84	0.58	2.19	2.07	1.12	0.58	1.41
Millard	1.57	1.58	1.04	0.89	0.86	0.70	0.82	1.09
Piute	1.52	0.38	0.80	0.67	1.00	1.00	1.00	1.25
Sevier	0.97	0.87	0.66	0.79	0.56	0.56	1.04	1.45
Washington	1.03	1.53	0.92	0.93	1.08	0.94	0.95	2.10
Wayne	2.69	1.41	1.52	1.93	1.45	1.53	1.22	1.49
REGIONAL TOTALS	1.32	1.39	0.93	1.06	0.94	0.89	0.85	1.41
Northeastern Region								
Daggett	1.12	1.38	1.77	1.19	1.00	1.96	3.16	3.02
Duchesne	1.80	2.17	3.41	1.62	0.63	1.01	1.63	2.38
Uintah	1.41	2.18	3.09	1.47	0.49	0.49	1.89	2.32
REGIONAL TOTALS	1.53	2.13	3.12	1.51	0.59	0.96	1.95	2.40
Southeastern Region								
Carbon	1.42	1.61	1.73	0.52	0.69	0.49	1.34	1.29
Emery	1.30	1.38	1.61	0.78	0.64	1.05	1.00	1.78
Grand	1.56	2.44	2.27	1.53	1.74	1.28	2.00	2.03
San Juan	1.87	2.93	2.09	1.51	0.89	1.27	2.57	1.67
REGIONAL TOTALS	1.53	1.81	1.79	0.90	0.77	0.93	1.37	1.55
Unknown counties	2.60	1.35	1.78	0.00	1.11	2.50	1.04	1.49
Mixed counties	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STATE TOTALS	1.44	1.48	1.88	1.02	0.65	0.83	1.43	1.55

Table 6. Percentage distribution of cottontail rabbit harvest by region and county, 1981-88.

Region and				Ye				
County	1981_	1982	<u> 1983</u>	<u> 1984</u>	1985	1986	1987	1988
<u>Northern Region</u>								
Box Elder	14.87	6.05	5.93	5.49	3.82	5.68	12.83	12.11
Cache	0.72	0.36	0.33	0.50	0.96	0.25	0.91	0.27
Davis	0.03	0.00	0.16	0.12	0.00	0.41	0.04	0.12
Morgan	0.82	0.38	0.64	0.73	1.16	0.10	0.15	0.19
Rich	0.80	0.36	0.96	2.08	0.89	1.98	0.53	1.05
Summit	1.66	0.65	0.83	0.29	1.16	0.56	0.57	0.77
Weber	0.62	0.38	0.11	0.56	0.27	0.56	1.44	0.42
REGIONAL TOTALS	19.50	8.19	8.95	9.77	8.26	9.53	16.49	14.96
Central Region				•				
Juab	6.79	5.76	1,95	5.28	2.04	2.84	5.17	6.05
Salt Lake	0.41	1.09	1.16	2.29	0.48	0.91	1.19	0.49
Sanpete	1.31	0.94	1,21	0.82	1.23	2.38	5.61	3.74
Tooele	10.58	10.04	6.53	9.18	10.51	9.99	11.67	13.72
Utah	5.63	3.55	3.44	5.43	8.26	7.66	11.07	8.63
Wasatch	0.59	0.73	0.17	0.91	1.57	1.83	1.73	0.92
REGIONAL TOTALS	25.32	22.10	14.44	23.91	24.09	25.61	36.47	33.55
Southern Region								
Beaver	0.72	0.76	0.30	0.32	1.30	1.12	0.95	0.68
Garfield	1.14	0.64	0.32	0.47	0.61	3.04	0.26	0.42
Iron	1.79	0.81	0.52	1.82	1.23	2.94	0.26	1.54
Kane	0.66	0.34	0.29	2.05	1.98	2.43	0.33	0.84
Millard	5.50	4.94	1.50	3.64	5.66	4.26	3.48	2.99
Piute	0.46	0.08	0.06	0.12	0.20	0.30	0.08	0.22
Sevier	1.94	0.79	0.48	0.56	1.23	0.91	1.22	2.28
Washington	2.06	2.99	1.49	5.05	10.99	6.09	0.77	1.90
Wayne	2.00 2.77	0.98	0.61	2.43	2.18	1.17	0.77	
REGIONAL TOTALS	17.04	12.33	5.56			22.26		0.7
		14.33	3.30	16.46	25.35	42.40	7.88	11.69
Northeastern Regio		7 20	1 26	2 20	1 04	F F0	4 4 1	0.00
Daggett	0.53	1.28	1.36	2.20	1.84	5.58	4.41	2.82
Duchesne	7.92	15.10	16.19	13.17	9.21	7.05	7.68	9.4
Uintah	7.13	14.70	29.37	14.23	5.87	3.35	7.03	13,20
REGIONAL TOTALS	15.58	31.08	46.93	29.61	16.93	15.97	19.13	25.4
Southeastern Regio								
Carbon	6.96	9.98	9.60	4.90	7.30	4.87	6.26	4.6
Emery	4.68	5.47	6.98	4.69	9.76	9.53	5.63	5.9
Grand	2.96	2.79	2.15	5.99	4.16	5.07	2.53	0.74
San Juan	6.93	5.78	4.55	4.66	3.41	6.90	2.90	0.7
REGIONAL TOTALS	21.53	24.01	23.28	20.25	24.64	26.37	17.34	12.09
Unknown counties	0.19	2.28	0.84	0.00	0.68	0.25	2.66	2.2
Mixed counties	0.84	0.00	0.00	0.00	0.00	0.00	0.00	0.0
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, 1981-88.

Region and				٧	ear		· _ · · · · · · · · · · · · · · · · · ·	·
County	1981	1982	1983	1984	1985	1986	1987	1988
Northern Region			<u> </u>	1704	T203	1300	<u> </u>	T 2 2 8
Box Elder	10.75	8.04	7.73	7.77	5.40	6.52	8.17	10 50
Cache	1.50	0.88	0.79	0.72	0.66	1.18	0.73	10.53
Davis	0.55	0.15		0.21	1.42	0.08	0.73	1.15 0.37
Morgan	0.80	0.59	0.72	0.63	1.37	1.65	0.19	
Rich	0.62	0.52	0.79	1.32	1.11	2.24	0.19	0.20 0.87
Summit	1.97	1.10	1.08	1.74	2.13	1.61	0.57	
Weber	0.80	0.81		0.84	1.33	0.68	0.73	1.30 1.06
REGIONAL TOTALS	17.00	12.10	11.79	13.23	13.42	13.97	11.07	15.51
Central Region				<u> </u>	13.72		11.07	T3.3T
Juab	5.65	5.98	3.05	3.84	2.39	3.05	4.26	6.15
Salt Lake	0.84	1.51	1.25	2.67	1.46	0.72	1.36	1.46
Sanpete	1.32	1.61	2.03	1.74	2.26	3.30	6.45	3.57
Tooele	11.80	13.25	10.12	11.43	12.98	11.68	12.63	15.44
Utah	8.14	7.15	6.26	6.78	8.24	6.81	13.07	12.83
Wasatch	1.03	1.36	0.65	1.35	2.13	1.82	1.94	12.63
REGIONAL TOTALS	28.77	30.86	23.36	27.82	29.46	27.38	39.73	40.90
Southern Region				<u> </u>	27010	27,500	<u> </u>	. 70.70
Beaver	0.58	0.57	0.44	1.20	1.68	1.52	1.36	0.73
Garfield	1.56	0.51	0.61	0.57	0.40	2.03	0.54	0.46
Iron	2.49	1.57		1.26	1.33	2.84	0.85	1.51
Kane	1.17	0.28	0.93	0.96	0.62	1.82	0.82	0.92
Millard	5.06	4.64	2.73	4.20	4.30	5.08	6.07	4.24
Piute	0.43	0.30	0.14	0.18	0.13	0.25	0.12	0.27
Sevier	2.88	1.35	1.38	0.72	1.42	1.35	1.68	2.43
Washington	2.88	2.90	3.05	5.52	6.60	5.42	1.17	1.40
Wayne	1.48	1.03	0.75	1.29	0.97	0.63	0.57	0.80
REGIONAL TOTALS	18.52	13.14	11.25	15.91	17.46	20.95	13.23	12.81
Northeastern Regio				13.71	<u> </u>	20.72	<u></u>	12,01
Daggett	0.68	1.38	1.45	1.89	1.19	2.37	2.00	1.44
Duchesne	6.31	10.33	8.93	8.34	9.44	5.80	6.74	6.13
Uintah	7.25	9.98	17.87	9.87	7.84	5.71	5.34	8.81
REGIONAL TOTALS	14.24	21.69	28.25	20.11	18.48	13.88	14.09	16.38
Southeastern Regio				<u> </u>	20.70			<u> </u>
Carbon	7.03	9.20	10.42	9.66	6.82	8.34	6.68	5.60
Emery	5.18	5.88	8.18	6.12	9.92	7.58	8.08	5.15
Grand	2.73	1.70	1.78	3.99	1.55	3.30	1.81	0.56
San Juan	5.34	2.93	4.09	3.15	2.48	4.53	1.62	0.72
REGIONAL TOTALS	20.28	19.70	24.46	22.93	20.78	23.74	18.19	12.04
, <del>_</del> _								
Unknown counties	0.10	2.51	0.89	0.00	0.40	0.08	3.65	2.33
Mixed counties	1.09	0.00	0.00	0.00	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

Table 8. Statewide summary of cottontail rabbit harvest statistics, 1967-88.

Year	Total Hunters	Total <u>Harvest</u>	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
TOTALS (1967-88)	550,045	3,578,674	2,203,949	(31.98)	(131.92)
AVERAGES (1967-87)	25,046	163,252	100,322	1.45	5.98

Table 9. Cottontail rabbit field bag check summary, 1988.

			200								
Region and	Total	Total	Total	Total	Rabbits/	Total Complete	Total	Total	Total	Rabbits/	Rabbits/
County	Parties	Hunters	Hours	Rabbits	100 Hr	Hunts	Hunters	Hours	Rabbits	100 Hr	Hunter
Northern Region											
Box Elder	42	66	360	139	39	28	63	265	116	4	1.84
Cache	Ļ	1	ł	}	1	1	1	1	1	ł	l
Davis	ł	1	}	1	}	1	ł	1	1	1	ł
Morgan	_	-	-		-	ŀ	ł	1	1	!	ł
Rich	က	9	œ	9	33	2	4	7	9	43	1.50
Summit	-	7	-	0	0	_	7	-	0	ł	1
Weber	;	!	-	+	!	1		1	1	ŀ	ŀ
REGIONAL TOTALS	47	108	380	146	38	31	69	280	122	4	1.77
Central Region			٠								
Juab	ł	ł	ł	ı	1	l	ŀ	1	ł	ł	ł
Salt Lake	ł	ł	ł	ł		ŀ	ł	ł	I	ł	1
Sanpete	1	1	ł	ł		ł	1	1	1	ļ	1
Tooele	1	ŀ	1	1	1	ł	ł	1	1	!	}
Utah	ł	1	1	}	1	1	1	<b>!</b>	1	1	ł
Wasatch	1	!	1	1	1	1	1	!	;	-	!
REGIONAL TOTALS	i	ł	ł	l	1	1	-	1	ł	1	1
Southern Region											
Beaver	!	1	1	}	1	1	}	1	I	1	1
Garfield	}	1	ł	l	1	ŀ	ł	I	!	1	1
Iron	ŀ	1	1	ŀ	1	i	ł	1	l	ł	1
Kane	1	1	ł	1	1	1	1	ł	ľ	1	ł
Millard	-	ഹ	5	0	0	!	ł	1	ł	1	ł
Piute	1	1	1	1	1	1	}	1	1	1	1
Sevier	-	2	4	2	20	1	ł	ŀ	1	1	ł
Washington	1	1	ļ	1	ł	1	1		1	ŀ	1
Wayne	1	:	!	;	-	:	!	1	1	1	ł
REGIONAL TOTALS	2	7	9	2	33	1	1	1	!	1	
Northeastern Region	티										
Daggett	7	91	4	87	212	4	ф	19	72	379	8.00
Duchesne	20	129	459	265	58	18	33	8	76	104	2.94
Uintah _	44	83	149	238	160	16	29	79	116	147	4.00
REGIONAL TOTALS	107	226	649	590	91	38	71	191	285	149	4.01
Southeastern Region	5										
Carbon	9	55	53	Ξ	38	0	0	0	0	0	0.00
Emery	2	ഹ	15	13	87	_	က	0,	m	33	1.00
Grand	4	6	12	9	20	er	9	15	S	42	0.83
San Juan	8	16	30	14	47	3	9	10	2	20	0.33
REGIONAL TOTALS	20	45	98	44	51	7	15	31	10	32	0.67
STATE TOTALS	176	386	1,121	782	70	76	155	502	417	S	3

Table 10. Cottontail hunter success trend determined by field bag checks, 1983-88.

Region and County Northern Region Box Elder	Bag/ E	Bag/ Hunter	Bag/	Bag/	Bag/	Bag/	Bag/	Bag/	Bag/	Bag/	Bag/	/ Bag/
	100 Hr	Hunter	,									
			100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter	100 Hr	Hunter
Box Elder												
Carbo	11	09.0	1	ł	1	ł	0	0	28	1.43	4	1.84
	ŀ	l	ł	}	1	}	١	}	}	1	1	1
Davis	1	1	1	١	1	ł	1	1	ł	ł	1	1
Morgan	1	1	1	;	ł	ł	ł	1	:	ł	1	1
Rich	59	1.33	ł	1	ł	ł	ł	1	ł	1	43	1.50
Summit	1	1	}	1	ł	l	ł	1	ł	}	ł	ł
Weber	1	}	1	-	1	ł	1	ŀ	1	}	I	1
REGIONAL TOTALS	24	1.00	:		1	1	0	0	0	1.43	4	1.11
	!											
Juah	ł	ł	ł	1	ł	ł	}	ł	1	ł	1	1
Salt Lake	1	ł	l	l	1	1	1	1	}	ł	1	1
Sanpete	ł	ł	1	1	ł	1	l	}	1	1	I	I
Tooele	ł	ł	ł	ł	1	1	1	ŀ	ł	1	ļ	1
Utah	;	ł	1	1	ł	{	}	1	1	1	1	1
Wasatch	1	1	ł	!	+	1	1	1	1	1	1	1
REGIONAL TOTALS	   <b>!</b>	1	1	1		1	1	!	1	1	ł	1
Southern Region												
Beaver	ł		1	1	1	1	1	ł	1	1	ł	ł
Garfield	ţ	1	1	l	1	ł	ł	ł	1	1	ŀ	ł
Iron	ł	ł	1	ŀ	1	1	ł	ł	1	!		ł
Kane	ł	ł	1	ł	1	1	¦	1	!	1	ł	ł
Millard	ł	ł	1	ł	17	0.80	ł	ł	1	1		}
Piute	1	1	1	i	1	ì	ł	1	ł	1	ł	I
Sevier	ł	1	1	ł	1	1	1	1	ł	1	:	1
Washington	1	;	1	ł	1	1	1	1	1	1	1	1
Wayne	1	1	1		1	1	1	1	1	1	ł	1
REGIONAL TOTALS	1	1	1	1	21	0.80	1	1	1	1	1	1
Northeastern Region												
Daggett	172	4.43	107	3.20	1	ł	1	1	0	3.33	379	8.00
Duchesne	148	3.70	001	0.75	1	1	0	0.00	63	3.33	104	2.94
Uintah	225	6.75	Ξ	1.91	i	ł	100	1.50	20	1.76	147	4.00
REGIONAL TOTALS	173	4.50	108	2.00	1	1	20	0.75	89	1.93	149	4.01
Southeastern Region												
Carbon	ł	ł	49	2.87	1	1	158	3.80	1	1	0	0.00
Emery	1	1	!	<b>!</b>	1	}	33	1.00	1	1	33	1.00
Grand	ł	1	0	0.00	{	1	}	1	1		42	0.83
San Juan	57	3.43	20	1.33	1	<u> </u>	!	1	}	1	20	0.33
REGIONAL TOTALS	57	3.43	19	2.13	1	ł	133	3.33		1	32	0.67
STATE TOTALS	901	3.07	9/	5.06	21	0.80	36	1.21	43	1.68	83	2.69

#### SNOWSHOE HARE

#### **Harvest**

Results of the 1988 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 is shown in Table 15. The 1988 season compared to 1987 and the 13-year average follow:

		Percent	change from
	<u>1988</u>	<u> 1987</u>	Average
Snowshoe hare hunters	4,725	+28	-11
Snowshoe hares harvested	8,231	+37	-28
Hunter-days afield	15,444	+73	-1
Snowshoes per hunter-day	0.53	-21	-21
Snowshoes per hunter	1.74	+7	<del>-</del> 13

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.

The 1976 harvest questionnaire was modified in an attempt to better inform respondents concerning the potential for misidentification and aid them in distinguishing between these two varying hares. Comparative reported harvests between 1975 and 1976 suggest that this was accomplished, at least to a significant degree, but the relatively large harvest in counties outside of the snowshoe's range suggested continued confusion. Further refinement was made in the 1977 harvest questionnaire in an effort to more clearly define the snowshoe hare harvest.

In 1978, a leaflet containing pictures and descriptions of the different species of hares found in Utah was mailed with the questionnaire. As a result of the identification leaflet, it is assumed that the data have been more accurate. The 1988 questionnaire had drawings of the various rabbits with brief descriptions of each in an attempt to reduce misidentification.

Results of the 1988 questionnaire indicate a 28 percent increase in snowshoe hare hunters and a 37 percent increase in harvest compared to 1987. This corresponds to an increasing rabbit population statewide.

It is unknown what proportion of the reported snowshoe harvest is actually white-tailed jackrabbits that were incorrectly identified by the hunters. However, it is believed that identification has been improving as a result of efforts to educate the hunter on the differences between the various species of hares found in Utah.

Table 11. Summary of snowshoe hare hunter success and distribution of harvest and hunting pressure by region and county, 1988.

Region and	Sample	Hunter-days	Snowshoes	Snowshoe/	% of	% of
County	Size*	Afield	Bagged	<u> Hunter-day</u>	<u> Pressure</u>	Harvest
Northern Region		_				
Box Elder	31	1,569	1,218	.78	10.16	14.80
Cache	19	1,953	400	.21	12.64	4.86
Davis	7	250	100	.40	1.62	1.21
Morgan	3	50	33	.67	.32	.40
Rich	18	801	267	.33	5.18	3.24
Summit	26	1,402	500	.36	9.08	6.08
Weber	9	601	150	.25	3.89	1.82
REGIONAL TOTALS	113	6,628	2,671	.40	42.91	32.45
Central Region						
Juab	7	400	66	.17	2.59	.81
Salt Lake	8	417	200	.48	2.70	2,43
Sanpete	24	1,235	834	.68	8.00	10.14
Tooele	19	968	267	.28	6.27	3.24
Utah	28	1,302	567	.44	8.43	6.89
Wasatch	16	884	684		5.72	8,31
REGIONAL TOTALS	102	5,209	2,621	.50	33,72	31.84
Southern Region						
Beaver	1	283	0	0.00	1.83	0.00
Garfield	1	16	0	0.00	.10	0.00
Iron	0	0	0	0.00	0.00	0.00
Kane	0	0	0	0.00	0.00	0.00
Millard	3	83	100	1.20	.54	1.21
Piute	2	33	100	3.00	.21	1.21
Sevier	10	200	150	.75	1.29	1.82
Washington	1	16	33	2.00	.10	.40
Wayne	2	183	0	0.00	1.18	0.00
REGIONAL TOTALS	20	818	384	.47	5.29	4.66
Northeastern Region						
Daggett	11	400	784	1.96	2.59	9.53
Duchesne	24	818	51 <b>7</b>	.63	5.29	6.28
Uintah	12	467	417	.89	3.02	5.07
REGIONAL TOTALS	47	1,686	1,719	1.02	10.91	20.89
Southeastern Region						,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Carbon	7	217	100	.46	1.40	1.21
Emery	14	567	534	.94	3.67	6.49
Grand	0	0	0	0.00	0.00	0.00
San Juan	1	116	116	1.00	.75	1,41
REGIONAL TOTALS	22	901	751	.83	5.83	9.12
Unknown Counties	3	200	83	.42	1.29	1.01
STATE TOTALS	307	15,444	8,231	.53	100.00	100.00

<sup>\*</sup>Total hunter trips from questionnaire returns.

<sup>\*\*</sup>Probable misidentification as snowshoe are not known to exist in this county.

Table 12. Summary of snowshoe hares bagged per hunter-day by region and county, 1982-88.

Region and				ear			
County	1982	1983	1984	1985	1986	1987	1988
Northern Region	<u> </u>						
Box Elder	0.31	0.27	2.93	0.14	0.38	0.35	0.78
Cache	0.62	0.53	1.27	0.75	0.00	1.67	0.21
Davis	0.00	0.00	0.29	0.11	0.50	0.25	0.40
Morgan	0.50	0.45	0.14	0.00	0.03	0.00	0.67
Rich	0.53	0.67	0.58	0.06	0.56	1.27	0.33
Summit	0.77	0.94	0.61	0.63	0.29	0.50	0.36
Weber	0.32	0.39	0.31	0.17	1.00	0.38	0.25
REGIONAL TOTALS	0.46	0.47	1.30	0.33	0.29	0.76	0.40
Central Region			•				
Juab	1.83	1.20	0.33	0.00	1.44	0.00	0.17
Salt Lake	0.20	0.00	0.23	0.17	0.30	0.00	0.48
Sanpete	0.97	0.48	0.80	0.23	0.30	0.57	0.68
Tooele	1.01	0.94	0.68	0.24	0.21	0.75	0.28
Utah	0.39	0.38	0.71	0.64	0.53	0.39	0.44
Wasatch	0.84	0.65	0.44	0.32	0.68	0.56	0.77
REGIONAL TOTALS	0.88	0.60	0.55	0.33	0.54	0.48	0.50
Southern Region							
Beaver	1.00	0.00	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	0.40	0.11	0.00	0.00
Iron	0.00	0.17	3.00	0.50	0.00	0.00	0.00
Kane	0.00	0.00	0.00	0.75	0.00	0.00	0.00
Millard	1.00	0.00	0.00	0.00	1.00	2.80	1.20
Piute	0.50	1.45	0.20	0.00	0.00	0.00	3.00
Sevier	0.75	0.36	0.00	0.25	0.63	0.60	0.75
Washington	0.00	1.00	0.00	0.50	0.00	0.00	2.00
Wayne	0.58	0.81	1.22	1.00	0.38	1.14	0.00
REGIONAL TOTALS	0.65	0.67	0.65	0.46	0.45	0.88	0.47
Northeastern Region							
Daggett	0.47	0.60	0.33	1.00	0.50	1.00	1.96
Duchesne	0.79	0.89	0.43	0.30	0.41	0.65	0.63
Uintah	0.58	0.61	0.20	0.49	0.13	1.31	0.89
REGIONAL TOTALS	0.67	0.69	0.30	0.41	0.28	0.91	1.02
Southeastern Region		•	_				
Carbon	1.32	0.10	0.13	0.29	0.09	1.00	0.46
Emery	1.28	0.59	0.19	0.67	0.13	0.57	0.94
Grand	3.00	0.00	0.00	0.00	0.75	0.00	0.00
San Juan	0.00	0.00	2,00	0.00	1.00	5.00	1.00
REGIONAL TOTALS	1.30	0.36	0.17	0.37	0.16	0.81	0.83
Unknown counties	0.81	0.65	0.00	0.00	0.00	0.40	0.42
Mixed counties	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STATE TOTALS	0.71	0.57	0.60	0.36	0.37	0.67	0.53

Table 13. Percentage distribution of snowshoe hare harvested by region and county, 1982-88.

Region and	, <del></del>			Year			
County	1982	1983_	1984	1985	<u> 1986</u>	<u>1987</u>	1988
Northern Region							
Box Elder	5.63	5.30	36.79	3.12	3.49	3.26	14.80
Cache	2.15	4.87	4.40	3.73	0.00	10.20	4.86
Davis	0.00	0.00	0.62	1.87	0.58	0.40	1.21
Morgan	2.32	2.75	0.31	0.00	0.58	0.00	0.40
Rich	2.98	2.11	2.20	0.61	5.80	7.75	3.24
Summit	5.96	7.00	7.85	24.99	6.98	4.89	6.08
Weber	1.49	<u> </u>	1.25	1.22	5.23	1.22	1,82
REGIONAL TOTALS	20.53	23.93	53.46	<u>35.61</u>	22.67	27.75	32.45
<u>Central Region</u>							
Juab	7.28	1.27	0.62	0.00	13.37	0.00	0.81
Salt Lake	0.33	0.00	0.93	0.61	1.74	0.00	2.43
Sanpete	4.64	2.54	1.25	1.87	5.80	6.93	10.14
Tooele	13.74	10.17	4.07	5.60	3.49	4.89	3.24
Utah	3.48	6.36	6.91	9.97	14.53	8.57	6.89
Wasatch	7.62	4.67	5.02	3.73	14.53	8.16	8.31
REGIONAL TOTALS	37.09	<u>25.01</u>	<u> 18.87</u>	21.87	53.49	28.57	31.84
Southern Region							
Beaver	0.33	0.00	0.00	0.00	0.00	0.00	0.00
Garfield	0.00	0.00	0.00	1.22	0.58	0.00	0.00
Iron	0.00	0.21	0.93	1.22	0.00	0.00	0.00
Kane	0.00	0.00	0.00	1.87	0.00	0.00	0.00
Millard	0.17	0.00	0.00	0.00	2.33	5.71	1.21
Piute	0.33	3.38	0.31	0.00	0.00	0.00	1.21
Sevier	0.50	1.68	0.00	1.22	2.91	2.44	1.82
Washington	0.00	0.84	0.00	2.48	0.00	0.00	0.40
Wayne	1.16	4.67	6.91	2.48	1.74	3.26	0.00
REGIONAL TOTALS	2.48	10.78	8.16	10.62	7.56	11.42	4.66
Northeastern Regio	<u>n</u>						
Daggett	1.32	0.63	0.31	3.12	0.58	0.81	9.53
Duchesne	13.91	11.66	8.16	9.97	6.98	6.93	6.28
Uintah	10.43	19.09	5.34	11.87	2.33	8.57	5.07
REGIONAL TOTALS	25.66	31.39	13,83	24.99	9.88	16.32	20.89
Southeastern Region	<u>n</u> .						
Carbon	5.46	0.84	3.45	4.37	2.33	5.71	1.21
Emery	6.13	5.73	0.93	2.48	1.16	6.53	6.49
Grand	0.50	0.00	0.00	0.00	1.74	0.00	0.00
San Juan	0.00	0.00	1,25	0.00	1,16	2.04	1.41
REGIONAL TOTALS	12.09	6.57	5.65	6.85	6.40	14.28	9.12
Unknown counties	2.15	2.33	0.00	0.00	0.00	1.63	1.01
Mixed counties	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STATE TOTALS	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, 1982-88.

STATE TOTALS	100.00	100.00	100.00	100.00	100.00	100.00	100.00
	<del></del>		<del></del>				
Mixed counties	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Unknown counties	1.88	2.05	0.00	0.00	0.00	2.73	1.29
REGIONAL TOTALS	6,57	10.48	19.66	6.76	<u>14,47</u>	11.78	5.83
San Juan	0.12	0.12	0.37	0.00	0.43	0.27	0.75
Grand	0.12	0.00	0.18	0.00	0.86	0.00	0.00
Emery	3.40	5.55	2.99	1.35	3.24	7.67	3.67
Carbon	2.93	4.82	16.10	5.41	9.94	3.83	1.40
Southeastern Region				_			
REGIONAL TOTALS	27.32	25.80	27.71	22.12	13.17	12.04	10.91
Uintah	12.78	17.72	<u>15.73</u>	8.80	6.48	4.38	3.02
Duchesne	12.54	7.48	11.42	12.19	6.26	7.12	5.29
Daggett	1.99	0.60	0.55	1.13	0.43	0.54	2.59
Northeastern Regio				_			
REGIONAL TOTALS	2.70	9.15	7.49	8.34	6.26	8.76	5.29
Wayne	1.41	3.26	3.37	0.90	1.73	1.91	1.18
Washington	0.00	0.48	0.00	1.80	0.00	0.00	0.10
Sevier	0.47	2.65	1.31	1.80	1.73	2.73	1.29
Piute	0.47	1.33	0.93	0.00	0.00	0.27	0.2
Millard	0.12	0.48	0.18	0.90	0.86	1.36	0.54
Kane	0.00	0.00	0.00	0.90	0.00	0.00	0.00
Iron	0.00	0.72	0.18	0.90	0.00	2.19	0.00
Garfield	0.00	0.12	0.18	1.13	1.94	0.27	0.10
Beaver	0.23	0.12	1.31	0.00	0.00	0.00	1.83
Southern Region	_	_	_				
REGIONAL TOTALS	29.78	23.86	20.60	23.70	36.93	40.00	33.72
Wasatch	6.45	4.10	6.73	4.29	7.99	9.86	5.72
Utah	6.33	9.64	5.80	5.64	10.15	14.79	8.43
Tooele	9.61	6.15	3.55	8.34	6.05	4.38	6.27
Sanpete	3.40	3.01	0.93	2.93	7.13	8.21	8.00
Salt Lake	1.17	0.36	2.43	1.35	2.16	2.19	2.70
Juab	2.81	0.60	1.12	1.13	3.46	0.54	2.59
<u>Central Region</u>							
REGIONAL TOTALS	31.77	28.68	24.53	39.05	29.16	24.65	42.91
Weber	3.28	2.77	2.43	2.71	1.94	2.19	3.89
Summit	5.51	4.22	7.68	14.22	8.86	6.57	9.08
Rich	3.99	1.80	2.24	3.60	3.89	4.10	5.18
Morgan	3.28	3.49	1.31	2.25	7.78	0.27	0.32
Davis	0.59	0.00	1.31	6.09	0.43	1.09	1.62
Cache	2.46	5.19	2.06	1.80	2.81	4.10	12.64
Box Elder	12.66	11.21	7.49	8.34	3.46	6.30	10.16
Northern Region							
County	1982	1983	1984	1985	1986	1987	1988
Region and				Year			

Table 15. Statewide summary of snowshoe hare harvest statistics, 1975-88.

Year	Total Hunters	Total Harvest	Hunter-days Afield	Hares Per	Hares
<u>rear</u>	nuncers	narvest	Arieid	Hunter-day	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
19 <b>7</b> 9	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
TOTALS					
(1975-88)	73,463	156,556	217,291	9.23	27.58
AVERAGES					
(1975–87)	5,288	11,410	15,527	0.67	1.99

### APPENDIX

#### APPENDIX A

### WEATHER CONDITIONS

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

The 1987-88 winter weather was mild again. Below average precipitation fell between November 1987 and March 1988 but December 1987 through February 1988 temperatures were below average. April precipitation was .77 inches above normal across all seven climatic subdivisions. The summer was dryer and warmer than normal. This should have led to good hatching success for most upland game.

Temperatures remained above average March through August. This warmer weather and below average precipitation may have reduced brood survival for some upland game populations.

Table 1. Comparison of 1988 monthly average temperatures (F) to the normal for each weather division and statewide.

No. 1 WESTERN												
	26.9	32.7	38.7	47.0	56.5	65.7	74.4	72.0	62.4	50.5	37.2	28.4
1988	19.4	30.1	39.4	49.4	56.0	70.3	9.92	72.0	61.3	56.3	38.5	24.0
Departure (degrees)	-7.5	-2.6	+.7	+2.4	١.5	44.6	+2.2	0.0	-	45.8	+1.3	4.4
No. 2 DIXIE												
Normal	38.7	43.9	48.8	56.4	65.4	75.2	82.0	7.67	72.6	61.5	47.8	39.8
1988	38.8	46.5	50.1	57.7	66.2	78.4	84.4	79.8	71.8	67.9	48.9	40.5
Departure (degrees)	<del>-</del>	+2.6	+1.3	+1.3	÷.8	+3.2	+5.4	<del>-</del>	<u>ας</u> Ι	+6.4	 	+
No. 3 NORTH CENTRAL												
Normal	27.0	31.9	38.6	47.4	57.3	62.9	74.6	72.2	63.1	51.3	38.0	28.9
1988	22.9	31.3	39.0	50.9	57.5	72.0	77.3	73.2	61.8	57.7	38.7	25.2
Departure (degrees)	۲.	9	4.4	+3.5	4.4	+6.1	+2.7	+1.0	-1.3	+6.4	+.7	.s.
No. 4 SOUTH CENTRAL												
Normal	27.1	31.6	37.0	44.9	54.0	63.1	70.4	68.0	60.2	49.8	37.1	28.8
1988	23.3	31.4	37.0	۲۲.٦	53.5	67.0	72.2	9.89	59.1	55.1	37.5	25.7
Departure (degrees)	-3.8	2	0.0	+2.2	.5	+3.9	+1.8	<b>9.</b> +		+5.3	4.4	۳. ښ
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
1988	18.9	25.0	31.0	43.7	50.3	63.4	68.5	64.8	54.3	9.09	31.7	20.2
Departure (degrees)	-2.3	+.3	<del>+</del> .4	+3.7	+.7	+5.8	+3.2	+1.7	<b>L</b> '-	+5.7	.3	<u>ს</u> 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
1988	7.6	19.6	35.5	48.9	56.8	9.69	73.9	70.6	58.7	53.8	35.5	20.5
Departure (degrees)	-7.5	-4.5	0.0	+2.7	9·+	4.7	÷.	+1.3	٠١-	+5.3	2.0	r
No. 7 SOUTHEAST					·							
Normal	27.0	33.8	41.0	20.5	59.8	69.7	9.92	73.8	65.4	53.7	39.5	29.3
1988	22.9	32.9	40.7	51.4	59.8	73.2	78.2	75,3	64.1	58.6	40.7	29.5
Departure (degrees)	-4.1	6	3	+1.2	0.0	+3.5	+1.6	+1.5	-1.3	44.9	+1.2	+.2
STATE AVERAGES											4	
Normal	26.4	31.8	38.6	47.4	56.9	0.99	73.6	71.2	62.7	51.5	37.9	28.6
1988	22.3	31.0	39.0	49.9	57.2	9.07	75.9	72.0	61.2	57.1	38.8	26.5
( accepted ) cantacach	7	•	,									

Table 2. Comparison of 1988 monthly average precipitation to the normal for each weather division and statewide.

No. 1 WESTERN												
Normal	0.59	0.57	0.74	0.81	16.0	0.67	0.63	0.72	0.55	0.65	0.62	0.54
1988	86.	.13	.56	1.22	1.02	.33	.30	.75	.57	.25	.86	.64
Departure (inches)	.39	44	18	+.4	÷.1	34	-,33	+.03	+.02	40	+.24	+. 10
No. 2 DIXIE												
Normal	1.35	1.36	1.42	0.82	99.0	0.36	0.78	1.01	0.76	0.78	0.99	0.96
1988	1.57	4	.47	3.92	.49	.67	.82	1.62	.15	=	.70	1.48
Departure (inches)	.22	92	95	+3,10	17	+.31	+.04	+.61	61	67	29	+.52
No. 3 NORTH CENTRAL												
Normal	1.56	1,39	1.60	1.96	1.60	1.19	0.65	0.95	0.99	1.31	1.34	1.41
1988	1.10	1.	1.06	1.84	1.92	.23	. 19	86.	.52	.27	2.49	1.20
Departure (inches)	46	-1.25	54	12	+.32	96'-	46	47	47	-1.04	+1.15	21
No. 4 SOUTH CENTRAL												
Normal	1.09	1.06	1.15	1.04	0.94	0.54	96.0	1.31	<b>1</b> .00	0.92	0.98	0.97
1988	1.38	.37	1.01	2.28	.94	٠9.	9.	1.62	.54	.52	.86	1.1
Departure (inches)	+.29	69	14	+1.24	0.00	+.07	36	+.31	46	40	12	+.14
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
1988	1.63	.49	1.52	1.63	1.48	4	.31	9.	.57	.22	3.01	1.55
Departure (inches)	53	-1.43	37	25	06	73	57	-, 59	58	-1.23	+1.39	43
No. 6 UINTAH BASIN												
Normal	0.51	0.45	0.57	99.0	0.78	0.72	0.58	0.81	0.71	0.87	0.54	0.61
1988	.94	.05	.56	1.04	.72	.20	.15	8.	96.	.15	4	.51
Departure (inches)	+.43	40	01	+.36	06	52	-,43	3	+.19	72	-0.10	10
No. 7 SOUTHEAST												
Mormal	0.72	0.61	0.64	0.61	0.67	0.40	0.77	1.05	0.78	1.09	0.73	0.74
1988	.92	.29	٤	1.22	0.90	.59	.33	1.12	98.	.29	.56	.53
Departure (inches)	+.20	32	-, 13	+.61	+0.23	+.19	44	+.07	.08	80	٠.17	21
STATE AVERAGES						-						
Normal	1.14	1.05	1.14	1.1	1.0	0.72	0.75	1.01	0.85	1.01	0.97	1.03
1988	1.22	0.27	0.81	1.88	1.07	0.44	0.39	96.0	0.59	0.26	1.27	1.00
Departure (inches)	90	,			,		,					

#### 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 nonresident and combination, decreased slightly in 1988 for the third straight year. We continue to lose juvenile hunters. However, a major portion of the decline in juvenile small game license sales this year was due to changing the age limit from 16 years to 14 years of age. Therefore, fewer youths were eligible for juvenile small game licenses this year. Likewise, 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 5 percent will be hunting small game.

Table 3 identifies revenue generated to 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 service.

Table 1. Statewide small game license sales information, 1954-88.

	Adult	Res.	Juv. ]	Res.	Non.	Res.		
	<u>Small</u>	<u>Game</u>	<u>Small</u>	<u>Game</u>	Sma1]	L Game	<u>Combi</u>	nation
Year	No.	Cost	No.	Cost	No.	Cost	No.	Cost
1954	12,990	3.50	5,170	2.00	561	15.00	70 574	6 00
1955	12,086	3.50					79,574	6.00
1956	12,102	3.50	5,369	2.00	478 524	15.00	79,960	6.00
1957	12,102	3.50	5,735	2.00	524 505	15.00	80,968	6.00
1958	14,290	3.50	6,192	2.00	505	15.00	81,271	6.00
	-		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	115,436	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

Table 2. Actual (1971-1988) and projected (1990-2000) 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.

	Utah	L	icenses S	Sold	Proportion
Year	Population	RSG <sup>1</sup>	NRSG	Total	Hunting Small Game
1971	1,101,000	101,421	1,000	101,521	9.2
1972	1,135,000	110,691	1,075	111,766	9.8
1973	1,169,000	115,129	964	116,093	9.8
1974	1,197,000	112,963	974	113,937	9.4
1975	1,234,000	108,636	967	109,603	8.8
1976	1,272,000	85,268	1,141	86,409	6.7
1977	1,316,000	86,549	1,270	87,819	6.6
1978	1,364,000	95,637	1,449	97,086	7.0
1979	1,416,000	100,116	1,575	101,691	7.1
1980	1,461,037	110,039	1,330	111,369	7.5
1981	1,524,830	103,041	1,559	104,600	6.8
1982	1,588,622	99,744	1,637	101,381	6.3
1983	1,652,415	93,303	1,685	94,988	5.6
1984	1,716,207	88,084	1,633	89,717	5.2
1985	1,780,000	94,991	1,500	96,491	5.4
1986a	1,665,000	82,777	1,274	84,051	5.0
1987a	1,678,000	85,099	1,235	86,334	5.0
1988	1,695,000	92,677	1,428	94,105	5.6
1995	2,134,250	115,000	2,500	117,500	5.4
2000	2,258,450	120,000	3,000	123,000	5.3

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

<sup>&</sup>lt;sup>2</sup>Utah Statistical Abstracts 1984 - projections constitute the December 1982 official State of Utah baseline projections (Office of State Planning Coordinator and Bureau of Economic and Business Research, University of Utah).

<sup>&</sup>lt;sup>a</sup>Utah Population Estimate Committee Report for July 1

Small game license sales and income, 1971-88 (JSG=juvenile small game, RSG=adult resident small game, CMB=combination license, NRSG=nonresident small game). Table 3.

								_	No. Federal					
		Licens	icense Fees		Num	er of Li	Number of Licenses Sold	plo	Ouck Stamp	Total 6	ross Reve	nue Attrik	outed to S	Total Gross Revenue Attributed to Small Game (\$)
Year	386	RSG	CMB	NRSG	JS64	RSG	CMB	NRSG	Sold <sup>3</sup>	3564	RSG	CMB <sup>2</sup>	NRSG	TOTAL
1971	2.50	4.50	10.00	20.00	16,044	20,681	20,681 102,284	1,000	37,588	20,055	93,064	200,557	20,000	336,676
1972	2.50	4.50	10.00	20.00		19,796	107,414	1,075	33,042	20,653	89,082	230,553	21,500	361,789
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	371,985
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	363,855
1975	2.50	4.50	10.00	20.00	15,869	17,057	115,362	296	39,652	. 19,836	76,756	234,701	19,340	350,633
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	430,355
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	434,135
1978	3.00	<b>6</b> .00	18.00	20.00	15,419	37,082	81,227	1,449	38,091	23,128	222,492	221,719	28,980	556,320
1979	3.00		18.00	20.00	14,200	36,721	84,450	1,575	35,255	21,300	220,326	252,862	31,500	525,988
1980	4.00		23.00	30.00	14,042	30,189	771,001	1,330	34,369	28,084	241,512	425,120	39,900	734,616
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	708,755
1982	4.00		23.00	30.00	14,040	36,850	82,970	1,637	34,116	28,080	294,800	315,597	49,110	780,607
1983	4.00		23.00	30.00	13,814	39,602	73,529	1,685	33,642	25,620	305,249	257,670	50,134	638,672
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	614,434
1985	9.00	12.00	35.00	40.00	12,987	30,102	82,137	1,500	30,235	38,961	361,224	484,246	000'09	944,431
1986	6.00	12.00	35.00	40.00	11,946	29,567	67,435	1,274	25,533	35,838	354,804	395,973	50,960	837,575
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	843,806
1988	9.00	12.00	35.00	40.00	9,498	25,733	72,846	1,428	15,400	28,494	308,796	535,971	57,120	930,381

Walue does not include cougar, bear, turkey permits and commercial hunting area licenses.

to small game equals the resident small game license fee divided by the resident fishing license fee plus the resident big from combination license sale when projecting revenue generated. The proportion of the combination license fee attributed They may fish and hunt big game but they do not hunt any other small game. Therefore, duck stamp sales are subtracted <sup>2</sup>Combination license values are based on the assumption that all waterfowl hunters purchased only combination licenses. game license fee plus the resident small game license fee or \$9.33 for 1988.

³Total 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. <sup>4</sup>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 on conservation officers 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, 1971-88.

No.Therm							REG	I O N					1
### Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Hours Miles Mi		Nort	hern	Cent	ral	South	nern 1	Northea	stern	Southea	stern	STATE	TOTALS
450         878         796         588          346         3,115           260         873          796          588          246          3,115           469          891          740          488          200          2,016           479          819          849          317          2,91           479          846          731          848          300          2,91           479          849          849          300          2,91           479          849          508          300          2,91           444          731          562          290          2,91           455          642          721          562          290          2,91           450          642	Species	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours
577         878         796         88         346         346         3115           4269         963         752         888         346         346         3116           4269         963         752         953         297         351         371         371           479         846         963         773         988         786         377         251         371         251         373	Pheasant												
489         —         963         —         732         —         297         —         3.016           489         —         963         —         740         —         691         —         488         —         297         —         3.016           479         —         846         —         993         —         515         —         393         —         515         —         393         —         516         —         393         —         517         —         2,918         —         2,917         —         2,918         —         2,918         —         2,912         —         2,912	1971	507	ł	878	1	796	:	588	}	346	1	3,115	l
3.22         691         740          488          330          2,561           409          846          518          317          2,911           409          846          518          317          2,912           476          622          721          564          2,912           438          642          721          564          2,912           438          642          721          564          2,912           438          642          721          564          2,912           439          642          721          566          2,912           438          642          750          566          2,912           437          633          750          2,912          2	1972	469	1	963	1	752	ł	535	1	297	1	3,016	1
479         819         848         -         508         -         317         -         2,911           466         -         846         -         508         -         317         -         2,912           476         -         824         -         733         -         515         -         333         -         2,905           476         -         824         -         721         -         554         -         343         -         2,905           479         -         642         -         654         -         552         -         209         -         2,905           358         -         672         -         721         -         552         -         209         -         2,905           459         -         672         -         720         -         552         -         209         -         2,905           450         -         673         -         673         -         670         -         552         -         209         -         2,905           470         -         672         -         743         -         7 <td>1973</td> <td>322</td> <td>1</td> <td>169</td> <td>ŀ</td> <td>740</td> <td>ł</td> <td>488</td> <td>;</td> <td>320</td> <td></td> <td>2,561</td> <td>1</td>	1973	322	1	169	ŀ	740	ł	488	;	320		2,561	1
490	1974	479	1	819	ł	848	ŀ	508	}	317	1	1,971	1
476         482         773         434         — 400         — 2,905           444         — 731         — 790         — 554         — 343         — 2,902           438         — 642         — 721         — 562         — 588         — 2,975           438         — 642         — 721         — 562         — 209         — 2,572           11         435         — 642         — 780         — 546         — 209         — 2,572           21         435         — 635         — 639         — 2,572         — 2,572         — 2,572           22         260         — 635         — 636         — 626         — 209         — 2,572           33         — 617         — 689         — 426         — 330         — 2,576           444         — 359         — 473         — 426         — 330         — 2,518           455         — 617         — 669         — 426         — 330         — 2,518           455         — 617         — 669         — 520         — 1,933           455         — 617         — 640         — 520         — 1,935           456         — 617         — 620         — 1,965         — 1,965	1975	490	ŀ	846	ł	993	1	515	1	393	}	3,237	ł
484	1976	476	ŀ	822	1	773	1	434	1	400	1	2,905	ł
479         642         654         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         721         652         720         721 <td>7761</td> <td>484</td> <td>!</td> <td>731</td> <td>1</td> <td>790</td> <td>1</td> <td>554</td> <td>}</td> <td>343</td> <td>ŀ</td> <td>2,902</td> <td> </td>	7761	484	!	731	1	790	1	554	}	343	ŀ	2,902	
438          642          721          562          209          2,572           4 59          672          750          546          209          2,576           2 60          673          673          673          2,66           2 60          639          639          670          2,66           444          359          473          463          166          2,166           444          359          473          463          1,905           455          617          669          520          2,166           455          617          669          546          2,09          2,168           4         436          650          546          200          2,168      <	1978	479	!	642	ł	654	ł	512	1	588	1	2,875	
358         672         750         750         766         270         2,596           459         672         755         760         77         750         77         750         760	1979	438	1	642	ŀ	721	ł	262	ł	500	ł	2,572	
459         525          801          535          330          2,650           437          639          883          477          332          2,650           444          399          473          1,905          2,650           455          617          669          520          1,905           455          617          669          520          1,905           7         455          617          669          520          2,008           8         132          574          574          520          2,008           9          669          520          2,008          2,008           1         58          670          469          1,905          1,905           1         24         4	1980	358	ł	672	1	750	ł	546	}	270	!	2,596	
2         437          639          583          477          332          2,468           3         260          442          780          456          1,905           444          343          659          462          160          2,33           455          617          669          570          2,160           7         432          617          669          570          2,160           8         45          617          669          570          2,160           8          618          574          546          90          2,160           8          435          574          546          90          1,903           8         10         10         244         28         37	1981	459	1	525	1	801	1	535	}	330		2,650	1
3         260         —         442         —         780         —         426         —         330         —         2,238           444         —         359         —         473         —         463         —         1,605         —         1,905           5         455         —         617         —         669         —         520         —         166         —         1,905           7         432         —         617         —         669         —         520         —         2,108           8         —         518         —         669         —         540         —         2,108           9         —         436         —         669         —         540         —         2,108           10         432         —         604         —         469         —         90         —         1,905           10         264         35         32         88         58         79         49         140         13         1,652           10         24         4         4         4         4         4         4         1,933	1982	437	1	639	1	583	1	477	ł	332	ł	2,468	i
444	1983	260	}	442	1	780	1	426	ł	330	}	2,238	ì
5         383          503          650          492          180          2,008           455          617          669          520          2,008           334          617          669          520          2,008           102          436          669          546          90          2,008           102         24         289         40         344         28         587         49         140         13         1,652           24         9         342         30         575         39         870         63         120         8         1,933           3         8         10         24         24         28         584         43         23         14         44         44         44         47         44         47         44         47         44         44         44         44         44         44         44         44         44         44         44         44         44	1984	444	}	329	1	473	1	463	ł	166	1	1,905	1
455          617          669          520          270          2,531           334          518          574          546          90          2,160           10         264          604          469          90          2,160           10         264         36          604          469          90          2,160           10         264         36          604          469          90          2,160           2         46         9         342         30         575         39         870         63         140         13         1,652           2         46         9         342         30         575         39         870         63         10         1,933           3         24         4         4         44         45         44         47         44         46         88         17         1,933           4         1	1985	383	ł	303	1	650	ł	492	ł	180	}	2,008	1
432          518          574          546          90          2,160           334          436          604          469          90          1,933           192         24         289         40         344         28         587         49         140         13         1,652           24         4         24         34         27         853         66         227         28         1,953         1,652           25         10         264         35         32         8         538         25         17         939           24         4         43         27         853         66         227         28         1,953         1         393           25         4         351         39         445         42         341         46         88         17         1,999           26         11         95         7         478         41         36         89         16         1,002           36         11         180         12         24         34	1986	455	}	617	ł	699		520	}	270	}	2,531	1
334       —       436       —       604       —       469       —       90       —       1,933         192       24       289       40       344       28       587       49       140       13       1,652         24       46       9       342       36       575       39       870       63       120       8       1,652         34       26       36       36       37       27       28       27       28       1,793       1,652         5       4       4       43       27       841       64       594       43       230       1,799       1,799         5       4       4       351       39       445       42       341       26       60       16       1,799         5       4       351       39       445       42       341       46       88       17       1,491         6       11       95       7       478       41       346       32       15       10       1,002         9       265       23       240       36       41       44       47       6       10       9	1987	432	ł	518	ľ	574	ł	246	! !	6	!	2,160	1
192         24         289         40         344         28         587         49         140         13         1,652           46         9         342         30         575         39         870         63         120         8         1,652           34         26         35         32         8         538         38         25         17         939           44         4         43         27         853         66         277         28         214         21         1,361           5         8         10         26         29         503         62         597         44         75         10         1,462           5         4         4         351         39         445         42         341         46         88         17         1,492           6         11         95         7         448         41         346         44         46         88         17         1,431           9         265         23         24         44         475         44         75         10         9         10           1         10         12 </td <td>1988</td> <td>334</td> <td>}</td> <td>436</td> <td>1</td> <td>604</td> <td>1</td> <td>469</td> <td>1</td> <td>8</td> <td>1</td> <td>1,933</td> <td>1</td>	1988	334	}	436	1	604	1	469	1	8	1	1,933	1
192         24         289         40         344         28         587         49         140         13         1,652           46         9         342         30         575         39         870         63         120         8         1,652           80         10         264         35         32         8         538         38         25         17         939           24         4         43         27         853         66         227         28         214         21         1,361           27         8         10         206         29         503         62         597         44         75         10         1,462           22         4         351         39         445         42         341         26         60         16         1,799           22         4         351         39         445         42         341         46         88         17         1,431           68         11         95         7         478         41         346         32         15         61         1,462           58         11         180	<u>Ouail</u>												
46         9         342         30         575         39         870         63         120         8         1,953           80         10         264         35         32         8         538         38         25         17         939           24         4         43         27         853         66         227         28         214         21         1,361           27         8         107         23         841         64         594         43         230         12         1,361           27         8         10         206         29         503         62         597         44         75         10         1,462         1,799           22         4         351         39         445         42         341         26         60         16         1,719           22         4         351         39         445         41         46         88         17         1,431           58         11         180         12         329         43         366         31         0         0         951           5         9         93	1971	192	24	289	4	344	28	587	49	140	13	1,652	154
80         10         264         35         32         8         538         38         25         17         939           24         4         43         27         853         66         227         28         214         21         1,361           27         8         107         23         841         64         594         43         230         12         1,799           81         10         206         29         503         62         597         44         75         10         1,462           22         4         351         39         445         42         341         26         60         16         1,799           22         4         351         39         445         42         341         46         88         17         1,462           22         4         35         41         46         44         75         10         1,462           36         11         95         7         478         41         46         88         17         1,462           36         11         180         12         329         43         36	1972	46	60	342	30	575	39	870	63	120	<b>&amp;</b>	1,953	149
24         4         43         27         853         66         227         28         214         21         1,361           27         8         107         23         841         64         594         43         230         12         1,361           81         10         206         29         503         62         597         44         75         10         1,462           22         4         351         39         445         42         341         26         60         16         1,462           22         4         351         39         445         42         341         26         60         16         1,462           22         4         351         41         346         32         15         1,431           36         11         180         12         329         43         366         31         0         0         1,431           58         11         180         12         329         43         366         31         0         0         33           6         13         14         304         44         475         44	1973	80	2	264	35	32	∞	538	38	52	17	939	108
27         8         107         23         841         64         594         43         230         12         1,799           81         10         206         29         503         62         597         44         75         10         1,462           22         4         351         39         445         42         341         26         60         16         1,462             239         18         563         61         541         46         68         17         1,421           68         11         95         7         478         41         346         32         15         1,431           36         9         265         23         240         36         410         34         0         0         951           58         11         180         12         329         43         366         31         0         0         951           5         9         93         9         562         61         295         26         0         0         955            2         82         26         40	1974	24	4	43	27	853	99	227	. 28	214	12	1,361	146
81         10         206         29         503         62         597         44         75         10         1,462           22         4         351         39         445         42         341         26         60         16         1,219              239         18         563         61         541         46         68         17         1,219           68         11         95         7         478         41         346         32         15         6         1,002           36         11         180         12         329         43         366         31         0         951         93         93         93         94         44         475         44         0         0         930         93         9         562         61         295         26         0         0         930         9         562         61         295         26         0         0         955         9         9         9         9         9         9         9         9         9         9         9         9         9         9         9 <td< td=""><td>1975</td><td>27</td><td><b>0</b>0</td><td>107</td><td>23</td><td>841</td><td>49</td><td>594</td><td>43</td><td>230</td><td>12</td><td>1,799</td><td>150</td></td<>	1975	27	<b>0</b> 0	107	23	841	49	594	43	230	12	1,799	150
22       4       351       39       445       42       341       26       60       16       1,219       1            239       18       563       61       541       46       88       17       1,431       1         68       11       95       7       478       41       346       32       15       6       1,002         36       9       265       23       240       36       41       0       0       951       1         5       9       265       23       244       44       475       44       0       0       930       1         6       9       93       9       562       61       295       26       0       0       930       1         7       8       8       266       40          348         8       8       26       40          348         9       9       3       306       28         348         1       20       2       257       29 <td>1976</td> <td>81</td> <td>2</td> <td>206</td> <td>53</td> <td>503</td> <td>62</td> <td>297</td> <td>44</td> <td>75</td> <td>2</td> <td>1,462</td> <td>155</td>	1976	81	2	206	53	503	62	297	44	75	2	1,462	155
239       18       563       61       541       46       88       17       1,431       1         68       11       95       7       478       41       346       32       15       6       1,002         36       9       265       23       240       36       410       34       0       0       951       1         0       0       151       14       304       44       475       44       0       0       930       1         5       9       93       9       562       61       295       26       0       0       930       1           82       8       266       40         348          2       82       5       252       33          348          1       20       2       257       29          334          1       20       2       257       29           334          1       20       2 <td>7261</td> <td>22</td> <td>4</td> <td>351</td> <td>33</td> <td>445</td> <td>45</td> <td>341</td> <td>56</td> <td>ල</td> <td>91</td> <td>1,219</td> <td>127</td>	7261	22	4	351	33	445	45	341	56	ල	91	1,219	127
68     11     95     7     478     41     346     32     15     6     1,002       36     9     265     23     240     36     410     34     0     0     951     1       58     11     180     12     329     43     366     31     0     3     933     1       6     0     0     151     14     304     44     475     44     0     0     930     1       7     -     -     82     9     562     61     295     26     0     0     955     1       8     8     266     40     -     -     -     -     -     348        2     82     5     252     33     -     -     -     -     334        -     10     2     306     28     -     -     -     -     316        1     20     2     257     29     -     -     -     -     -     373        1     2     277     37     96     12     -     -     377	1978	}	1	239	18	563	19	541	46	88	11	1,431	142
36         9         265         23         240         36         410         34         0         0         951         1           58         11         180         12         329         43         366         31         0         93         1           6         0         0         151         14         304         44         475         44         0         0         930         1           7         9         93         9         562         61         295         26         0         0         955         1           8         8         266         40            348            2         82         5         252         33            348             10         2         306         28            334             1         20         2         257         29             316             1         20         2         277	1979	68	Ξ	92	7	478	4	346	32	15	9	1,002	97
58       11       180       12       329       43       366       31       0       3       933       1         0       0       151       14       304       44       475       44       0       0       930       1         5       9       93       9       562       61       295       26       0       0       955       1           82       8       266       40          348          2       82       5       252       33          334          10       2       306       28          316          1       20       2       257       29          316          1       20       2       257       39          373          1       20       2       277          373          1       2         277       373	1980	36	6	592	23	240	36	410	34	0	0	951	102
0     0     151     14     304     44     475     44     0     0     930     1       5     9     93     9     562     61     295     26     0     0     955     1         82     8     266     40        348        2     82     5     252     33        334        10     2     306     28        316        1     20     2     257     29        277       0     5       277     373     96     12       373	1981	58	Ξ	180	12	329	43	366	31	0	ო	933	100
5     9     93     9     562     61     295     26     0     0     955     1         82     8     266     40        348        2     82     5     252     33        334        10     2     306     28        316        1     20     2     257     29       277       0     5       277       373	1982	0	0	151	14	304	4	475	44	0	0	930	102
82     8     266     40       348        2     82     5     252     33        334        10     2     306     28       316        1     20     2     257     29       277       0     5       277     373     96     12      373	1983	ъ	6	93	6	295	19	295	56	0	0	955	105
2     82     5     252     33       334         10     2     306     28       316        1     20     2     257     29       277       0     5       277     37     96     12       373	1984	1	1	85	ထ	566	4	1	;	1	ł	348	48
10 2 306 28 316 1 20 2 257 29 277 0 5 277 37 96 12 373	1985	1	2	82	S	252	33	}	1	1	ł	334	4
1 20 2 257 29 277 0 5 277 37 96 12 373	1986	[	}	10	7	306	28	ł	ł	ł	ļ ļ	316	30
0 5 277 37 96 12 373	1987	!	-	70	7	257	53	1	1	ł	ł	277	33
	1988	0	വ	1	1	277	37	96	12	ł	}	373	54

Openior In Contract         Contract         Southern (Contract)         Contract (Contract)         Northeastern (Contract)         Northeastern (Contract)         Southeastern (Contract)         Northeastern (Contract)         Southeastern (Contract)         Northeastern (Contract)         Southeastern (Contract)							REG	REGION					
Hiles   Hours   Hiles   Hile		Nort	hern	Cen	tral	South	nern	Northea	stern	Souther	stern	STATE	STATE TOTALS
182   82   929   130   1,103   100   636   50   496   1     1,663   119   1,423   131   950   37   1,012   69   984   1     1,863   119   1,494   167   72   10   705   48   702   188   30   808   85   892   41   908   88   702   188   875   75   964   110   465   32   727   67   687	Species	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours
182   82   929   130   1,103   100   636   50   496   101   1,103   101   636   51   64   64   101   1,423   131   950   37   1,012   69   984   1,105   1,1	hukar												
1,063   119   1,423   131   950   37   1,012   69   984     1,063   119   1,444   167   72   10   705   48   702     1,88   30   808   85   892   41   908   88   702     1,89   30   808   85   892   41   908   88   702     405   50   1,198   120   601   37   600   71   429     546   54   733   76   415   22   293   23   267     283   68   1,668   124   235   12   20   0   23     330   56   591   49   147   11   245   21   260     1,7   15   190   17   245   24   103     1,7   15   393   32       118     1,30   212   804   103   214   260   1,346   140   351     1,30   212   804   103   214   206   1,083   147   215     1,31   34   35   1,503   216   427   271   1,108   147   215     1,31   34   35   1,503   216   427   271   1,108   147   215     1,30   240   1,287   162   610   286   1,040   135   1,079     1,30   240   1,287   162   610   286   1,040   135   1,079     1,30   240   1,287   162   610   286   1,040   135   1,079     1,30   240   1,287   162   610   286   1,040   135   1,079     1,30   240   1,287   162   243   243   244   244     1,31   34   39   1,287   140   275   275   276   274   276     1,44   34   34   31   32   32   32   32   32   32     1,44   34   34   34   35   35   35   35	1761	182	82	929	130	1,103	100	636	20	496	105	3,346	468
1,063   119   1,494   167   72   10   705   48   702     125   31   1,591   107   564   43   440   30   1,115     185   32   808   810   42   43   440   30   1,115     405   50   1,198   120   601   37   600   71   429     546   54   439   42   132   14   315   23   536     536   54   49   107   465   32   727   67   687     546   54   49   446   31   22   293   23   23     548   64   649   147   11   245   21   260     71   71   71   72   74   75   75   75     554   81   313   32       118     554   81   313   32       118     545   81   313   32       118     546   127   345   34     136   140   351     547   121   240   785   173   796   249   77   440     548   147   958   147   575   57   1,008   147   526     549   147   958   147   575   295   895   1,079     688   147   958   147   575   295   895   107   426     688   147   958   147   575   295   895   120   184     688   147   958   147   575   295   895   120   184     688   147   958   147   575   295   895   120   184     697   127   384   30   230   78           698   147   958   417   254   56   438   58   71       698   147   958   147   254   90           698   147   958   147   254   90           698   147   958   147   256   64   90           698   147   958   147   254   90           698   148   930   230   78             698   148   930   230   835   588   71       698   148   948   958   6   160   53   558   71         7,186   949   94	1972	. 712	16	1,423	131	950	37	1,012	69	984	28	5,081	386
125   31   1,591   107   564   43   440   30   1,115     188   30   808   85   892   41   908   88   786     405   50   1,98   110   465   32   727   600   71   429     405   50   1,98   110   601   37   600   71   429     546   54   793   76   415   22   293   23   267     588   1,98   124   235   12   0   0   20     473   34   571   56   475   35   260   37   101     17   15   190   17   20   2   488   44   103     5654   81   333   32       135   14       813   119   398   36   0   3   305   32   175     1,300   272   804   103   214   260   1,474   136   1,406     1,516   351   1,503   216   427   271   1,108   140   1,127     1,301   240   785   147   575   629   1,474   136   1,476     1,316   351   1,503   216   427   271   1,108   140   1,127     1,304   344   1,312   1,25   610   286   1,474   136   1,476     1,516   351   1,503   216   427   271   1,108   140   1,127     1,304   344   1,312   1,25   610   286   1,474   136   1,476     1,316   344   1,312   1,25   610   286   1,474   136   1,476     1,306   218   1,307   1,26   158   160   230   502   74   266     1,404   344   1,312   1,474   1,415   1,089   1,084     1,404   344   1,312   1,474   1,474   1,476   1,476     1,404   344   1,312   1,474   1,476   1,089     1,404   344   1,312   1,474   1,474   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,474   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   1,312   1,474   1,476   1,476   1,476     1,404   344   344   344   344   344   344   344   344	1973	1,063	119	1,494	167	72	2	705	48	702	89	4,036	363
188   30   808   85   892   41   908   88   786   88   78   88   786   7	1974	125	33	1,591	107	564	43	440	30	1,115	29	3,835	278
875   75   964   110   465   32   727   67   687     405   50   1,198   120   601   37   600   71   429     546   54   793   76   415   22   293   23   257     546   54   793   76   415   22   293   23   257     530   56   591   49   147   11   245   21   260     473   34   511   56   475   35   260   37   101     17   15   190   17   20   2   488   31   31     534   65   591   49   147   11   245   21   260     534   65   591   49   147   11   245   21   260     534   65   432   37           174     534   65   432   37           174     537   212   804   103   214   260   1,346   147     657   127   917   103   214   275   1,090   99   1,574     658   152   924   157   157   461   1,090   99   1,574     659   152   924   157   157   461   1,090   99   1,574     650   14   193   1,787   162   610   286   1,040   1,127     650   14   1,312   177   714   275   729   107   435     650   14   1,312   177   714   275   729   107   435     650   14   1,312   177   714   275   729   107   435     650   14   1,80   157   201   1,608   147   256     650   14   1,80   157   201   204   205     615   157   364   30   230   230   230   230   230     615   157   364   30   230   230   230   230     616   17   17   204   205   204   205   204     617   1,108   147   355   564   30   636   30     618   147   305   41   254   51   41   61       619   1,108   147   355   568   41       619   141   141   305   61   61       611   1,108   141   55   60   60   60   71     611   1,108   141   55   60   60   60   71     611   1,108   141   55   60   60   71     612   151   150   160   160   160     613   141   150   160   160   160     614   151   151   150   150   150     615   157   364   36   36   47   526   47     616   17   17   17   17   17   17   17	1975	188	30	808	82	892	4	908	88	786	22	3,582	299
405   50   1,198   120   601   37   600   71   429     359   28   459   42   135   14   315   23   536     280   68   1,68   124   235   12   0   0   0   25     330   56   591   49   147   11   245   21   260     473   34   571   56   475   35   260   37   101     17   15   190   17   20   2   488   44   103     284   73   432   37       135   14       813   119   398   36   0   3   305   32   175     330   212   804   103   214   260   1,346   140   351     1,300   212   804   103   214   260   1,474   140   1,184     1,300   297   1,317   162   610   286   1,406   135   1,079     1,300   297   1,171   129   432   279   107   435     1,300   297   1,171   129   432   279   1,083   147   626     1,404   218   1,180   93   459   80   636   93         1,049   218   1,180   93   459   80   636   93         1,148   147   556   518   518   519   519     1,148   147   556   548   519   518   519         1,148   147   556   536   538   511         1,148   147   556   538   518   519         1,148   147   556   538   538   518         1,148   147   556   538   538   511         1,148   147   556   538   538   538   549   549     1,148   147   556   538   538   538             1,148   147   556   538   538   538             1,148   147   556   538   538   538             1,148   147   536   538   538   531             1,148   147   536   538   538   531                 1,148   144   55   6 160   53   558   71             1,148   144   55   6 160   53   558   71             1,148   144   55   6 160   53   558   71             1,148   144   55   6 160   53   538   71             1,148   144   55   6 160   53   538   71             1,148   144   55   6 160   53   558   71             1,148   144   55   6 160   53   558   71             1,148   144   55   6 160   53   558   71           1,148   144   55   6 160   53   558   71           1,148   144   155   154   154   154   154   154   154   154   154   154	1976	875	75	964	110	465	32	727	29	687	99	3,718	320
359   28   459   42   135   14   315   23   536     546   54   793   76   415   22   293   23   267     283   68   1,668   124   235   12   0   0   53     330   56   1,668   124   235   12   0   0   53     473   34   571   56   475   35   260   37   101     17   15   190   17   20   2   488   44   103     554   81   303   32       188     334   65   453   36       135   14     334   65   453   37       135   14     336   35   457   49   60   3   305   32   175     1,370   212   804   103   214   260   1,346   140   351     627   127   917   105   296   429   949   147   761     1,300   297   1,717   129   432   219   1,083   147   626     1,300   297   1,717   129   432   219   1,083   147   626     1,049   218   1,180   93   445   51   61   61     1,049   218   1,180   93   459   80   636   93       1,148   147   556   564   910         1,148   147   556   610   53   558   71       1,148   144   55   6   160   53   558   71       1,118   144   55   6   160   53   558   71	1977	405	8	1,198	120	601	37	909	7.	429	44	3,233	322
546 54 793 76 415 22 293 23 267     283 68 1,668 124 235 112 0 0 53     473 35 56 591 49 147 11 246 21 260     17 15 15 190 17 20 2 488 44 103     236 73 453 36 174 108     236 73 453 36 174 108     339 32	1978	359	28	459	42	135	7	315	23	536	25	1,804	159
San Se	1979	546	72	793	92	415	22	293	23	267	14	2,314	199
330   56   591   49   147   11   245   21   260     17   15   190   17   20   2   488   44   101     234   81   303   32       135   14       813   119   398   36       135   14       813   119   398   36   0   3   305   32   175     379   35   457   49   60   7     180     1,201   240   785   173   796   249   77   440     1,194   199   1,287   160   775   629   1,474   136   1,776     1,194   199   1,287   160   775   629   1,474   136   1,776     1,300   297   1,171   129   432   279   1,090   99   1,574     1,300   297   1,171   129   432   279   1,090   99   1,574     1,409   218   1,488   157     354   742   111       1,049   218   1,180   93   455   80   636   93       1,18   147   396   74   55   54   51   71   71     1,18   147   396   74   55   584   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   588   71       1,18   147   396   74   55   588   588   71       1,18   147   396   74   55   588   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   71       1,18   147   396   74   55   588   588       1,18   147   396   74   55   588   588       1,18   147   396   74   55   588   588       1,18   147   396   74   55   588   588       1,18   147   396   74   75   75   75   75   75   75     1,18   147   396   74   75   75   75   75   75   75     1,18   147   396   74   75   75   75   75   75   75     1,18   147   396   74   75   75   75   75   75   75   75	1980	283	89	1,668	124	235	12	0	O	53	2	2,239	214
473   34   571   56   475   35   260   37   101     17   15   190   17   20   2   488   44   103     236   73   453   35         174     394   65   432   37         135   14       313   119   398   36   0   3   305   32   175     313   319   338   36           135   14       1,370   212   804   103   214   260   1,346   140   351     1,370   212   804   103   214   260   1,346   140   351     1,370   212   804   103   214   260   1,460   1,107     1,300   297   1,771   129   427   1,108   140   1,127     1,300   297   1,771   129   432   219   1,083   147   626     1,300   297   1,771   129   432   219   1,083   147   626     268   147   958   147   575   295   835   120   184     268   147   958   147   575   295   835   120   184     268   147   958   147   575   295   835   120   184     269   157   384   31   254   31   412   61     261   1,188   147   305   71   201   65   438   58       261   1,188   147   305   71   200   65   438   58       262   1,188   147   305   544   305   548   51   71       263   1,188   147   305   544   518   518   71       264   1,188   147   305   518   518   71       265   1,188   147   305   518   518   71       266   1,188   147   305   518   518       267   1,188   147   305   518   518       268   147   305   77   200   65   438   58       269   1,188   147   305   518   518   71       260   261   261   261   261   261   261   261     260   261   261   261   261   261   261   261     260   261	1981	330	20	591	49	147	=	245	21	260	32	1,573	169
17   15   190   17   20   2   488   44   103     236   81   303   32       135   14     118     394   65   432   33       135   14     118     813   119   398   35       135   14     174     813   119   398   36       135   14     180     379   35   457   49   60   7     180     1,370   212   804   103   214   260   1,346   140   351     1,316   212   804   103   214   260   1,346   140   351     1,316   212   804   157   157   461   1,090   39   1,574     1,194   199   1,287   160   775   629   1,474   136   1,079     1,310   297   1,711   129   432   219   1,040   131   1,079     1,300   297   1,711   129   432   219   1,040   135     1,049   218   1,180   93   459   80   636   93       1,188   147   305   77   200   65   438   58       1,188   147   305   77   200   65   438   58       1,188   147   305   77   200   65   438   58       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   558   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,188   144   55   6   160   53   535   71       1,189   141   141   141   141   141   141   141   141   141   141   141   141   141   141   141   141	1982	473	34	175	26	475	32	260	37	101	6	1,880	171
654         81         303         32         — </td <td>1983</td> <td>17</td> <td>15</td> <td>190</td> <td>17</td> <td>20</td> <td>2</td> <td>488</td> <td>4</td> <td>103</td> <td>۲.</td> <td>818</td> <td>82</td>	1983	17	15	190	17	20	2	488	4	103	۲.	818	82
Sample	1984	654	8	303	32	ł	ł	ì	· 	118	16	1,075	129
394   65   432   37     135   14       813   119   398   36   0   3   305   32   175     379   35   457   49   60   7     180     1,201   240   785   173   796   249   794   77   440     1,370   212   804   103   214   260   1,346   140   351     1,194   199   1,287   160   775   629   1,474   136   1,476     1,194   199   1,287   160   775   629   1,474   136   1,175     1,300   297   1,171   129   432   219   1,083   147   626     1,300   297   1,171   129   432   219   1,083   147   626     1,300   297   1,171   129   435   295   835   120   184     266   74   1,488   157     354   742   111       1,049   218   1,180   93   459   80   636   63     1,148   147   305   77   200   65   438   58       1,18   144   55   6   160   53   558   71       1,118   144   55   6   160   53   558   71       201   201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201   201     201   201   201   201   201   201   201   201     201   201   201   201   201   201   201   201     201   201   201   201   201   201   201   201   201     201	1985	236	73	453	36	ł	ł	ł	1	174	12	903	135
Grouse   119   398   36   0   3   305   32   175     Grouse   1,201   240   785   173   796   249   794   77   440     1,370   212   894   103   214   260   1,346   140   351     1,194   199   1,287   160   775   629   1,474   136   1,476   1   1,194   199   1,287   160   775   629   1,474   136   1,476   1   1,300   297   1,711   129   432   219   1,083   147   626   1   1,300   297   1,711   129   432   219   1,083   147   626   1   1,300   297   1,711   129   432   219   1,083   147   626   1   1,049   218   1,488   157     354   742   111       1,049   218   1,488   157     354   742   11       1,148   147   305   77   200   65   438   58       1,148   147   305   77   200   65   438   58       1,18   144   55   6   160   53   558   71       1,118   144   55   6   160   53   558   71	1986	394	65	432	37	ł	ł	135	4	ł	l	196	116
Grouse         1,201         240         785         173         796         249         794         77         440           1,201         240         785         173         796         249         774         740           1,370         212         804         103         214         260         1,346         140         351           627         127         917         105         296         429         949         147         761           967         152         924         157         157         461         1,090         99         1,574         1           1,194         199         1,287         160         775         629         1,474         136         1,476         1           1,516         351         1,503         216         427         271         1,108         140         1,127         1           1,300         297         1,171         129         432         219         1,048         147         626         1           577         201         1,280         147         575         295         835         120         184           506         74         <	1987	813	119	398	36	0	ო	302	32	175	23	1,691	213
Grouse         1,201         240         785         173         796         249         794         77         440           1,370         212         804         103         214         260         1,346         140         351           627         127         917         105         296         429         949         147         761           967         152         924         157         157         461         1,090         99         1,574         1           1,194         199         1,287         160         775         629         1,474         136         1,476         1           1,194         199         1,287         160         775         629         1,474         136         1,476         1           1,300         297         1,317         162         610         286         1,040         135         1,079         1           1,300         297         1,312         177         714         275         729         107         435           506         74         1,488         157          364         30         56         36         36         36         <	1988	379	35	457	49	99	~	-	l	180	7	1,076	105
1,201         240         785         173         796         249         794         77         440           1,370         212         804         103         214         260         1,346         140         351           627         127         917         105         296         429         949         147         761           967         152         924         157         157         461         1,090         99         1,574         16           1,194         199         1,287         160         775         629         1,474         136         1,476         1           1,516         351         1,503         216         427         271         1,176         1,476         1           1,300         297         1,171         129         432         219         1,083         1,079         1           1,300         297         1,171         129         432         219         1,083         1,079         1           1,300         297         1,171         174         275         729         107         435           506         74         1,180         93         459													
1,370         212         804         103         214         260         1,346         140         351           627         127         917         105         296         429         949         147         761           967         152         924         157         157         461         1,090         99         1,574         761           1,194         199         1,287         160         775         629         1,474         136         1,574         1           1,516         351         1,503         216         427         271         1,108         140         1,127         1           1,300         297         1,711         129         432         219         1,083         147         626         1           577         201         1,260         158         160         230         502         74         266         6           688         147         958         147         575         295         835         120         184           506         74         1,488         157          354         742         111 </td <td></td> <td>1,201</td> <td>240</td> <td>785</td> <td>173</td> <td>796</td> <td>249</td> <td>794</td> <td>7.7</td> <td>440</td> <td>83</td> <td>4,016</td> <td>828</td>		1,201	240	785	173	796	249	794	7.7	440	83	4,016	828
627 127 917 105 296 429 949 147 761 967 152 924 157 157 461 1,090 99 1,574 1 1,194 199 1,287 160 775 629 1,474 136 1,476 1 1,516 351 1,503 216 427 271 1,108 140 1,127 1 1,300 297 1,317 162 610 286 1,040 135 1,079 1 1,300 297 1,312 177 714 275 729 107 435 1 277 201 1,260 158 160 230 502 74 266 1 268 147 958 147 575 295 835 120 184 266 1 1,049 218 1,180 93 459 80 636 93 1 858 202 436 52 564 90 1 858 202 436 52 564 90 1 858 202 436 52 564 90 1 858 202 436 52 66 56 53 558 71 1 1,148 147 305 77 200 65 438 58 1 1,118 144 55 6 160 53 558 71 1	1972	1,370	212	804	103	214	260	1,346	140	351	82	4,085	797
967         152         924         157         157         461         1,090         99         1,574           1,194         199         1,287         160         775         629         1,474         136         1,476           1,516         351         1,503         216         427         271         1,108         140         1,127           737         132         1,317         162         610         286         1,040         135         1,079           1,300         297         1,171         129         432         219         1,083         147         626           577         201         1,260         158         160         230         502         74         266           688         147         958         147         575         295         835         120         184           506         74         1,488         157          354         71          36         93	1973	627	127	716	105	296	429	949	147	197	72	3,550	880
1,194         199         1,287         160         775         629         1,474         136         1,476           1,516         351         1,503         216         427         271         1,108         140         1,127           737         132         1,317         162         610         286         1,040         135         1,079           1,300         297         1,171         129         432         219         1,083         147         626           746         344         1,312         177         714         275         729         107         435           577         201         1,260         158         160         230         502         74         266           688         147         958         147         575         295         835         120         184           506         74         1,488         157          354         71          364         93           184         184         184         184         184         184         184         184         184         184         184         184         184         184	1974	296	152	924	157	157	461	1,090	66	1,574	133	4,712	1,002
1,516       351       1,503       216       427       271       1,108       140       1,127         737       132       1,317       162       610       286       1,040       135       1,079         1,300       297       1,317       129       432       219       1,083       147       626         746       344       1,312       177       714       275       729       107       435         688       147       958       147       575       295       835       120       184         506       74       1,488       157        354       742       111          1,049       218       1,180       93       459       80       636       93          615       157       364       30       230       78            858       202       436       52       564       90            1,148       147       305       77       200       65       438       58          1,118       144       55       6       160       53	1975	1,194	199	1,287	160	775	629	1,474	136	1,476	135	6,206	1,259
737       132       1,317       162       610       286       1,040       135       1,079         1,300       297       1,171       129       432       219       1,083       147       626         746       344       1,312       177       714       275       729       107       435         577       201       1,260       158       160       230       502       74       266         688       147       958       147       575       295       835       120       184         506       74       1,488       157        354       742       111          1,049       218       1,180       93       459       80       636       93          615       157       364       30       230       78            858       202       436       52       564       90            1,148       147       305       77       200       65       438       58          1,118       144       55       6       160       53       5	1976	1,516	351	1,503	216	427	27.1	1,108	140	1,127	134	5,681	1,112
1,300     297     1,171     129     432     219     1,083     147     626       746     344     1,312     177     714     275     729     107     435       577     201     1,260     158     160     230     502     74     266       688     147     958     147     575     295     835     120     184       506     74     1,488     157      354     742     111        1,049     218     1,180     93     459     80     636     93        615     157     364     30     230     78          858     202     436     52     564     90          997     127     380     41     254     51     412     61        1,148     147     55     6     160     53     558     71	7261	737	132	1,317	162	610	286	1,040	135	1,079	128	4,783	843
746     344     1,312     177     714     275     729     107     435       577     291     1,260     158     160     230     502     74     266       688     147     958     147     575     295     835     120     184       506     74     1,488     157      354     742     111        1,049     218     1,180     93     459     80     636     93        615     157     364     30     230     78          858     202     436     52     564     90          997     127     380     41     254     51     412     61        1,148     147     55     6     160     53     558     71	1978	1,300	297	1,171	129	432	219	1,083	147	979	114	4,612	906
577       201       1,260       158       160       230       502       74         688       147       958       147       575       295       835       120         506       74       1,488       157        354       742       111         1,049       2.18       1,180       93       459       80       636       93         615       157       364       30       230       78           858       202       436       52       564       90           997       127       380       41       254       51       412       61         1,148       147       305       77       200       65       438       58         1,118       144       55       6       160       53       558       71	1979	746	344	1,312	177	714	275	729	107	435	42	3,936	945
688     147     958     147     575     295     835     120       506     74     1,488     157      354     742     111       1,049     218     1,180     93     459     80     636     93       615     157     364     30     230     78         858     202     436     52     564     90         997     127     380     41     254     51     412     61       1,148     147     305     77     200     65     438     58       1,118     144     55     6     160     53     558     71	1980	577	201	1,260	158	160	230	505	74	566	33	2,765	702
506       74       1,488       157        354       742         1,049       218       1,180       93       459       80       636         615       157       364       30       230       78          858       202       436       52       564       90          997       127       380       41       254       51       412         1,148       147       305       77       200       65       438         1,118       144       55       6       160       53       558	1861	688	147	928	147	575	292	832	120	184	53	3,240	738
1,049     218     1,180     93     459     80     636       615     157     364     30     230     78        858     202     436     52     564     90        997     127     380     41     254     51     412       1,148     147     305     77     200     65     438       1,118     144     55     6     160     53     558	1982	206	74	1,488	157	}	354	742	11	1	}	2,736	969
615     157     364     30     230     78        858     202     436     52     564     90        997     127     380     41     254     51     412       1,148     147     305     77     200     65     438       1,118     144     55     6     160     53     558	1983	1,049	218	1,180	93	459	8	636	93	1	20	3,324	504
858 202 436 52 564 90 997 127 380 41 254 51 412 1,148 147 305 77 200 65 438 1,118 144 55 6 160 53 558	1984	615	157	364	30	230	78	ł		}	40	1,209	305
5 997 127 380 41 254 51 412 1,148 147 305 77 200 65 438 1,118 144 55 6 160 53 558	1985	828	202	436	25	564	90	}	1	}	40	1,858	384
, 1,148 147 305 77 200 65 438 1 1,118 144 55 6 160 53 558	1986	266	127	380	4	254	53	412	19	1	1	2,043	280
1,118 144 55 6 160 53 558	1987	1,148	147	305	11	200	92	438	28	1		2,091	350
	1988	1,118	144	22	9	160	53	558	11	1	1	1,891	274

Table 1 (continued)

						REGION	ION					
	Nort	hern	Central	tral	Southern	ern	Northeastern	stern	Southeastern	ıstern	STATE	TOTALS
Species	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours	Miles	Hours
Sage Grouse												
1971	1,743	596	606	145	1,423	86	1,465	4	1,089	128	6,629	812
1972	1,628	323	1,187	143	751	<u>‡</u>	2,125	170	1,280	141	176'9	921
1973	3,146	353	927	147	1,171	116	1,952	238	496	4	7,692	895
1974	2,026	321	1,551	115	1,881	193	2,964	248	887	124	9,299	1,001
1975	1,254	249	963	123	714	526	1,868	236	1,098	131	5,897	965
1976	1,965	281	426	121	379	183	1,881	227	1,222	191	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	76	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	8	1,471	184	278	30	4,076	9/9
1981	619	78	169	8	285	21	177	163	377	39	2,743	552
1982	1,669	169	762	92	454	83	862	116	ł	1	3,747	460
1983	019	158	720	164	284	5	365	125	108	2	2,714	208
1984	1,411	278	283	82	583	54	230	92	151	11	2,664	256
1985	2,164	169	481	74	410	45	999	84	106	6	3,827	381
1986	1,024	197	281	39	169	43	948	8	146	7	2,568	387
1987	1,939	205	172	37	286	22	1,114	124	195	18	3,706	434
1988	2,092	7.71	678	108	315	99	069	11	ł	1	3,775	442
Hungarian Partridge	artridge											
1761	929	85	104	18	;	ł	ł	}	1	ſ	780	103
1972	.1,255	119	126	12	}	1	1	ł	ł	ł	1,381	139
1973	1,643	156	12	4	1	ł	}	ł	ł	}	1,655	160
1974	1,035	176	14	7	1	1	1	ł	ł	}	1,049	178
1975	344	49	0	0	ł		ł	1	ł	}	344	4
1976	940	83	113	21	1	1	ł	ŀ	1	1	1,053	104
1977	1,145	126	125	S.	!	}	<b>!</b>	ł	1	1	1,270	191
1978	1,065	8	197	17	!	}	ł	1	1	}	1,262	107
1979	440	27	37	က	1	1	i	1	1	1	477	8
1980	250	55	22	9	1	ł	1	ł	}	1	300	وا
1981	270	23	92	က	1	1	1	ł	}	1	330	92
1982	324	39	!	!	1	}	ł	ŀ	!	1	324	39
1983	0	8		1	ł	1	ł	l	}	1	0	9
1984	815	221	1	1	ł	1	1	!	{	1	815	221
1985	114	38	1	!	1	1	1	ł	1	1	114	38
1986	213	4	1	ł	1	1	ł	1	1	1	213	44
1987	300	40	ł	ł	}	}	ł	}	ł	1	300	<del>6</del>
1988	316	30	2	-	i	!	1	1	ļ	1	326	31

Marthern   Central   Southern   Southern   Southern   Southern   State   International Plants   Marthern   State   International Plants   Marthern   Mar							R E G	N O I					
Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Miles   Hours   Hiles   Hours   Hiles   Hours   Hile		North	nern	Cent	ral	South	ern	Northeas	tern	Southea	stern	STATE	TOTALS
	Species	Miles	Hours	Miles	Hours		Hours		Hours	Miles	Hours	Miles	Hours
1,						!							
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510       —       279       —       939       —       360       555       —       2,643         337       —       242       —       849       —       270       —       1,968         270       —       180       —       1,040       —       370       —       2,402         330       —       281       —       1,237       —       340       —       2,402         350       —       260       —       1,372       —       300       —       2,62         360       —       262       —       1,329       —       400       —       5,66       —       2,402         382       —       264       —       1,174       —       386       —       2,486         270       —       264       —       1,174       —       389       —       2,486         90       —       264       —       1,174       —       389       —       2,486         270       —       270       —       270       —       278       —       2,486         270       —       270       —       270       — <td< td=""><td>1971</td><td>338</td><td>1</td><td>330</td><td>1</td><td>1,054</td><td>1</td><td>410</td><td></td><td>570</td><td><b>¦</b></td><td>2,702</td><td>ł</td></td<>	1971	338	1	330	1	1,054	1	410		570	<b>¦</b>	2,702	ł
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510        260       -1,372        300        626          360        262        1,329        400        556          382        264        1,174        388        761          270        265        655        359        540          270        270        903        400        580          240        240        722        298        580          90        822        298        590           177        356        340        590           175        178        663        400        590           179        129        1373        240           129 <td>1975</td> <td>330</td> <td>ł</td> <td>231</td> <td>ł</td> <td>1,237</td> <td>!</td> <td>340</td> <td>ŀ</td> <td>712</td> <td>1</td> <td>2,850</td> <td>}</td>	1975	330	ł	231	ł	1,237	!	340	ŀ	712	1	2,850	}
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	1988	ł	1	129	{	604	{	379		360	1	1,472	1

APPENDIX D: Season dates, bag limits and areas open by upland game species, 1988.

		Daily Bag	Possession	
Species	Season Dates	Limit	Limit	Area Open
Pheasant	Nov. 5-18	2 cocks	4 cocks	Statewide
	Nov. 5-Dec. 4	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, Tooele, and Uintah counties.
Mourning dove	Sept. 1-30	10	20	Statewide.
Band-tailed				
pigeon	Sept. 1-30	5	10	Beaver, Garfield, Grand, Iron, Kane, Millard, Piute, San Juan, Sanpete, Sevier, Utah, Washington and Wayne counties.
Chukar	Sept. 10-Nov. 30	5	10	Cache, Davis, 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; and those parts of Duchesne and Uintah counties south of Highway U-40; part of Sevier County.
	Sept. 10, 1988- Jan. 31, 1989	5	10	Beaver, Carbon, Emery, Garfield, Grand, Iron, Kane, Piute, Tooele, Washington, Wayne and those parts of Box Elder, Juab, Millard, Salt Lake, and Utah counties lying west of I-15. Also part of San Juan and Sevier County.

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		Daily Bag	Possession	<u> </u>
<u>Species</u>	Season Dates	Limit	Limit	Area Open
C				
Sage grouse	Sept. 10-18	3	6	Garfield (part), Piute, Sevier, and Wayne counties.
	Sept. 10-18	2	4	Beaver, Box Elder (part), Carbon, Daggett, Duchesne (part), Garfield (part), Grand, Iron, Kane, Uintah, Utah (part) counties.
	Sept. 10-18	1	2	Emery, Rich, San Juan (part) counties.
The follo	wing counties we	re closed to	sage grous	se hunting during 1988:
	-			Box Elder (part) Cache, Daggett, Davis, Duchesne (part), Juab, Millard, Morgan, Salt Lake, San Juan (part), Sanpete, Summit, Utah (part), Wasatch, Washington and Weber.
Forest grouse	Sept. 10- Nov. 30	4 (aggregate	8 e) (aggregat	Statewide. te)
Quail	Nov. 5-18	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. 5-Dec. 31	. 5	10	Washington County.
	rgan, Rich, Sanp uail hunting in		Summit, an	nd Wasatch counties were
Hungarian partridge	Sept. 10, 1988 Jan. 31, 1989	- 5	10	Part of Box Elder County west of I-15, Tooele County (part)
	Sept. 10- Nov. 30	5	10	Cache, Davis, Morgan, Rich, Summit and Weber counties; Box Elder County (part)

### APPENDIX D (continued)

Species	Season Dates	Daily Bag Limit	Possession Limit	Area Open
Wild turkey Spring hunt	May 1-21	Season limit 1 male turkey		Garfield, Grand (part), Iron (part), Kane, Washington (part), Wayne and San Juan (part) counties.
Ptarmigan	Sept. 10-0ct. 18	4	8	Summit, Daggett, Duchesne and Uintah counties.
Snowshoe hare	Sept. 10, 1988- Jan. 31, 1989	5	10	Statewide.
Cottontail rabbit	Sept. 10, 1988- Jan. 31, 1989	10	20	Beaver, Box Elder (part), Carbon, Daggett, Duchesne, Emery, Garfield, Grand, Iron, Kane, Millard, Piute, San Juan, Sevier, Uintah, Washington and Wayne counties
	Sept. 10, 1988- Jan. 31, 1989	5	10	Box Elder (part), Cache, Davis, Juab, Morgan, Rich, Salt Lake, Sanpete, Summit, Tooele, Utah, Wasatch and Weber counties.

APPENDIX E. Summary of upland game harvest questionnaire returns, 1962-1988

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	Questionnaires	Total		Useable		Percent of Licensees who
Year	Mailed	Returns	Percent	Returns	Percent	did not hunt
1962	10,068	4,122	41.0	3,433	34.0	22.0
1963	11,058	5,062	46.0	4,325	39.0	21.0
1964	10,718	4,840	45.0	4,180	39.0	23.0
1965	11,917	6,232	53.0			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	·		
1972	15,272			6,399	41.9	
1973	17,572			7,999	45.5	
1974	27,379	9,157	38.6	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	45.4	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	57.2	6,324	56.0	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

Appropriation No. 01-59-07