2011 Forest Grouse Parts Collection Summary

Morrow County Dusky Grouse

Brandon S Reishus
Upland Game Bird Program
Oregon Department of Fish and Wildlife
3406 Cherry Ave NE
Salem, OR 97303
Ph: 503-947-6324
E-mail: brandon.s.reishus@state.or.us

INTRODUCTION

Since 1980, wings and tails of blue[1] (*Dendragapus spp*), ruffed (*Bonasa umbellus*), and spruce grouse (*Falcipennis canadensis*) have been collected from hunters in Wallowa County. In 1984, collections for forest grouse were expanded to other counties in northeastern Oregon and portions of southwestern Oregon. Since that time the effort has increased to nearly statewide participation. In 2011, wings and tails were obtained from 17 of the 36 counties in Oregon (Table 1, Appendices A & B). A total of 738 wings and tails were examined at the two forest grouse wing bees; about 9% fewer than 2010, and 21% fewer than the most recent previous 5-year average. Statewide blue grouse submissions were down 5% and ruffed grouse wings were down 37% from the recent 5-year average.

[1]Dusky and Sooty grouse considered collectively as "blue" grouse.

USE OF INFORMATION

Data from wings can be used by biologists to better understand the distribution and timing of grouse harvest (Figures 1 & 3) in their areas, the relative proportions of harvest among species, the sex and age structure of the population, and the chronology of breeding activity (Figures 2 & 4). Distribution and timing of kill have relevance to obtaining information about grouse populations, season structure, and to hunter participation for coordination of law enforcement activities.

Mike Hansen has taken the lead in drafting three publications from the wing data collected over the last ~30 years. Two of the manuscripts have been submitted to the Journal of Wildlife Management, one of which was published in the February 2012 edition of the Journal (Hansen et al. 2012) and one of which is being revised. The published paper describes temporal changes in the age ratios of harvested dusky and ruffed grouse in Northeast Oregon.

Sex and age data reveal the reproductive performance in a population (productivity), and in conjunction with abundance information, provide insight into population trends. Hatching data may be used to understand the timing of reproduction in specific areas and provide information to develop appropriate census procedures. For example, if hatching times

Table 1. Forest Grouse wings submitted to the 2011 Oregon forest grouse wing-bees at Ladd Marsh Wildlife Area, 25 January 2012 and SW Region Office, 6 March 2012. Previous 5-year average presented for comparison.

	"Blue Grouse"		Ruffed Grouse		Spruce Grouse	Total for all Forest Grouse		
County	2011	Previous 5-Year Average	2011	Previous 5-Year Average	2011	2011	Previous 5-Year Average	2011 % Change From Previous 5-Year Average
Baker	65	53	24	19		89	72	23%
Crook		0		1		0	1	-100%
Grant	69	55	83	80		152	135	12%
Harney	5	3		0		5	4	32%
Malheur		2		0		0	2	-100%
Morrow	32	8	10	5		42	13	233%
Umatilla	2	2	3	4		5	6	-14%
Union	33	55	39	83	5	77	139	-45%
Wallowa	150	148	120	167	3	273	318	-14%
Wheeler		0		0		0	0	-100%
Northeast Total	356	326	279	359	8	643	690	-7%
Deschutes		1		0		0	1	-100%
Hood River	7	13	5	10		12	23	-48%
Jefferson	1	0		0		1	0	150%
Klamath		4		1		0	5	-100%
Lake	29	18		0		29	18	59%
Wasco	4	7	2	9		6	16	-63%
Other East Total	41	43	7	21	NA	48	64	-25%
Clackamas		4		5		0	9	-100%
Clatsop		0		0		0	1	-100%
Columbia		0		2		0	2	-100%
Coos		1		11		0	12	-100%
Curry		4		4		0	8	-100%
Douglas	12	27	16	50		28	77	-63%
Jackson		7		9		0	16	-100%
Josephine		0		1		0	1	-100%
Lane	1	12	1	13		2	25	-92%
Lincoln		0		0		0	0	-100%
Linn		5	4	6		4	11	-63%
Marion	3	4	3	6		6	10	-41%
Polk		0		0		0	0	-100%
Tillamook	3	2	1	5		4	7	-39%
Washington		0		0		0	1	-100%
Yamhill		0	2	1		2	1	43%
Western Total	19	68	27	114	NA	46	182	-75%
Unknown		0	1	1		1	1	-17%
Grand Total	**416**	**437**	**314**	**495**	**8**	**738**	**936**	**-21%**

differed substantially among regions of the state, the timing of summer censuses could be adjusted because the probability of observing a bird is a function of bird age and habitat conditions. Harvest statistics on grouse may not adequately reflect sex and age ratios of a population. Immature grouse may be more vulnerable to harvest than adults, especially early in the season. Presumably, the aforementioned biases would be constant for hunter-harvested birds among years, thus providing an index of the various parameters for the population.

METHODS

District wildlife biologists collect grouse parts from hunters by placing "wing barrels" in locations where grouse hunters are likely to encounter them. Bags are placed at the barrels which instruct hunters to remove one wing and the tail from each grouse they kill and place it in a single bag. They are also asked to record the date, county and general location of the kill. Barrels are checked periodically throughout the season and any bags not dated or labeled by hunters are labeled with the barrel location and date of collection. Field staff also distributed wing bags to known grouse hunters. Additionally, wing bags are mailed to a list of cooperating hunters by wildlife division staff prior the hunting season and an advertisement requesting participation in the program is placed in the annual game bird regulations and on the department's website. Finally, further opportunities to solicit participation such as magazine articles and news paper interviews are utilized when available.

Each winter biologists gather at wing bees to collect information from the parts. Currently, wing bees are held at Ladd Marsh Wildlife Area and at the Southwest Region Office. The data collected from each set of parts is: species, location of kill, date of kill, sex, age, and the stage of primary wing feather molt for immatures. Age is recorded as adult or immature and in addition, the adult class is further subdivided to adult or yearling (if discernable) for blue grouse. After the wing bees, data is entered into a spreadsheet which contains formulas for estimating the age, in days, of immatures based on the sequential replacement of primary wing feathers. Hatch dates are then back calculated for birds of known harvest date, provided they

were harvested prior to 10 October (immature molt, primaries 1 to 8, is usually complete by 10 October).

BLUE GROUSE RESULTS

During 2011, 416 wings and tails from blue grouse were collected in Oregon, an increase of 14% from the previous year and decrease of 5% from the recent 5-year average. The 2011 hunting season allowed a daily bag limit of 3 birds with 6 in possession. The season started 1 September statewide and ended 31 December in eastern Oregon and 31 January in western Oregon (western Oregon includes Hood River and Wasco counties for season dates). Wings from birds harvested during the first week of the season represented 40% of sample, and 72% after 4 weeks of the season (Figure 1). Similar to most previous seasons, there was a second peak of submissions during late September and early October, the beginning of many firearm deer and elk seasons.

For eastern Oregon, (and statewide) the majority of wings were collected from just 3 counties. Wallowa County accounted for 38% of wings and tails submitted, while Grant County contributed 17%, and Baker 16%. The remainder of the eastern Oregon submission came from 8 other counties. Only 19 wings were collected from Western Oregon, all from the counties of Douglas (12), Marion (3), Tillamook (3) and Lane (1) (Table 1).

Age and Sex Ratios

Immature grouse comprised 61% of the sample for both Sooty and Dusky grouse (Table 2). This indicates increased production, or at least recruitment into the fall population, compared to 2010. Statewide, the proportion of immatures in 2011 was below the previous 10 year average. Males were 50% of the statewide sample, 55% of the adults, and 45% of immatures in 2011.

Hatching Chronology

Statewide, hatch dates for grouse harvested during the 2011 hunting season ranged from 7 May to 21 July ($\bar{x}$ = 7 June), which was very similar to last year. Dusky grouse hatch

dates ranged from 7 May to 15 July ($\bar{x}$ = 7 June) and Sooty grouse hatch dates ranged from 27 May to 21 July ($\bar{x}$ = 19 June). For Dusky grouse, 74% hatched between 15 May and 15 June, while 75% of Sooty grouse hatched between 4 June and 10 July. Typical of most years, the peak Sooty grouse hatch was later than the Dusky grouse hatch. Overall, mean hatch dates were similar to 2010, and the one of the latest recorded during this study (1980 – 2011).

Wallowa County – 1980 to 2010

From 1980 through 2011 hunters in Wallowa County submitted parts representing 8,867 blue grouse (Table 3). In 2011, 150 wings were collected, which is down 47% from the average since the wing bee began in 1980. Males comprised 57% of the sample, which is a normal occurrence.

The immature proportion (57%) of the harvest was similar to last year and suggests a year of slightly below average production (Table 3). The proportion of immatures in Wallowa County ranged from a low of 38% in 1982 to a high of 80% in 2002 (1982–2010, $\bar{x}$ = 62%). Over the past 32 years, blue grouse populations in Wallowa County appeared to have four years of poor production as measured by a proportion of immatures <50% (1982, 1991, 1995, and 2006) and 10 years of good production as measured by a proportion of immatures >65% (1980, 1983, 1985, 1986, 1989, 1996, 1998, 2007, 2008, 2009; Table 3).

Mean hatch dates have ranged from 25 May (1986 and 2004) to 6 June (1995) with the preponderance of young hatched during a 3-week interval between late May and early June (Table 3). In 2011, the mean hatch date was 5 June and ranged from 8 May to 15 July.

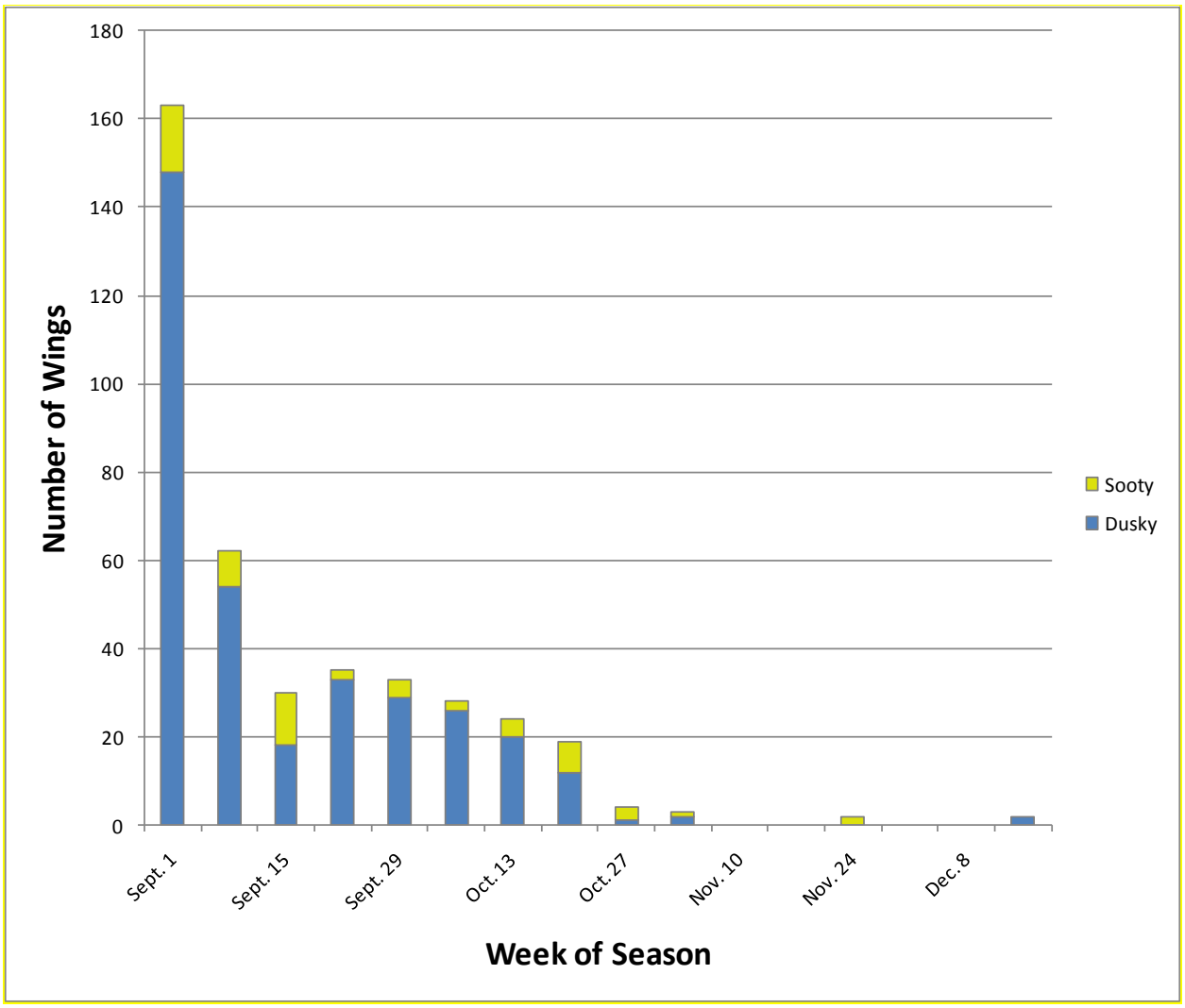

Figure 1. The number of Sooty and Dusky grouse, as represented by wing/tail collections, by week of reported harvest during 2011-12 Oregon hunting season.

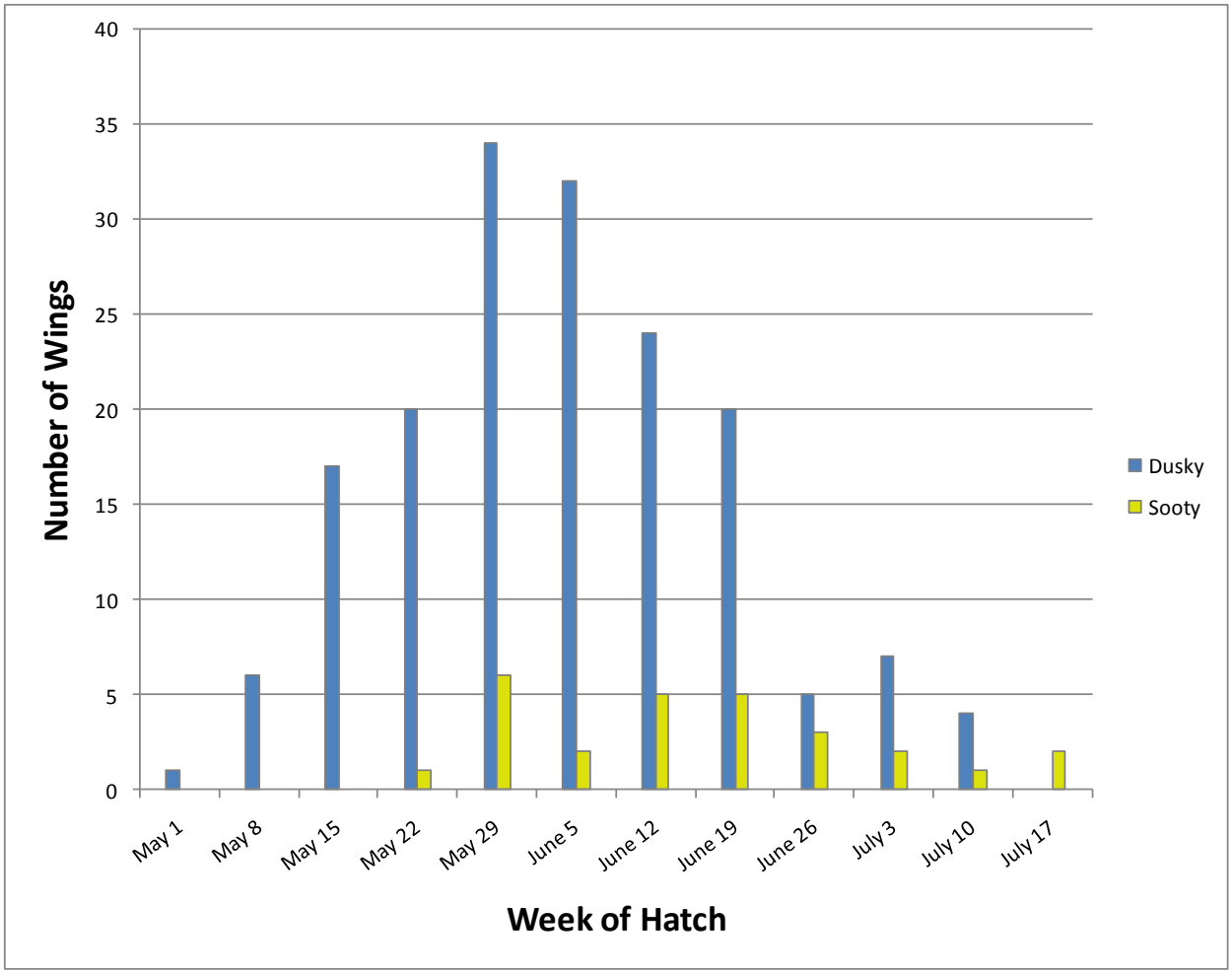

Figure 2. Hatching weeks of harvested immature Dusky and Sooty grouse as determined by the progression of primary feather molt of wings submitted by hunters during the 2011-12 hunting season in Oregon.

Table 2. Blue grouse sex ratios, age ratios and hatch dates by species and location in 2011. Individual counties with sample sizes >20 wings are also listed. Mean hatching date for grouse harvested before October 10, 2011.

County	*n*	M : F	AM : AF	IM : IF	*n*	I : A	I : AF	*n*	Mean Hatch	Hatch Range
Baker	65	38 : 62	72 : 28	22 : 78	54	67 : 33	91 : 9	29	3-Jun	14-May to 19-Jun
Grant	69	49 : 51	48 : 52	50 : 50	69	61 : 39	80 : 20	30	6-Jun	7-May to 10-Jul
Morrow	32	53 : 47	50 : 50	54 : 46	32	75 : 25	88 : 12			
Union	32	50 : 50	54 : 46	47 : 53	33	61 : 39	82 : 18			
Wallowa	146	57 : 43	61 : 39	54 : 46	150	57 : 43	83 : 17	61	5-Jun	8-May to 15-Jul
All Dusky Counties	351	50 : 50	57 : 43	47 : 53	348	61 : 39	83 : 17	165	5-Jun	7-May to 15-Jul
Lake	29	45 : 55	50 : 50	40 : 60	29	52 : 48	76 : 24			
All Sooty Counties	58	45 : 55	42 : 58	47 : 53	60	60 : 40	77 : 23	25	19-Jun	27-May to 21-Jul
Statewide	**409**	**50 : 50**	**55 : 45**	**47 : 53**	**405**	**61 : 39**	**82 : 18**	**190**	**7-Jun**	**7-May to 21-Jul**

Table 3. Sex ratios, age ratios and hatching dates of dusky grouse determined from parts submitted by hunters from harvest in Wallowa County, Oregon, 1980 to 2011.

		Sex Ratios			Age Ratios		Hatch Information			
Season	***n***	**M:F**	**AM:AF**	**IM:IF**	**I:A**	**I:AF**	**Mean**	**Range**		
1980	59	54:46	83:17	41:59	69:31	93:7				
1981	125	57:43	60:40	55:45	62:38	80:20	29-May	7-May	to	29-Jun
1982	95	53:47	53:47	53:47	38:62	56:44	31-May	16-May	to	16-Jun
1983	165	53:47	57:43	51:49	72:28	86:14	30-May	8-May	to	25-Jun
1984	155	57:43	63:37	53:47	52:48	74:26	4-Jun	13-May	to	8-Jul
1985	258	53:47	63:37	49:51	72:28	88:12	1-Jun	4-May	to	4-Jul
1986	598	58:42	74:26	52:48	70:30	90:10	26-May	3-May	to	15-Jul
1987	736	58:42	72:28	51:49	65:35	87:13	26-May	2-May	to	14-Jul
1988	471	54:46	60:40	47:53	53:47	75:25	2-Jun	28-Apr	to	19-Jul
1989	371	53:47	59:41	51:49	70:30	85:15	30-May	29-Apr	to	10-Jul
1990	286	58:42	65:35	55:45	54:46	77:23	27-May	5-May	to	1-Jul
1991	260	60:40	68:32	50:50	43:57	70:30	1-Jun	9-May	to	13-Jul
1992	284	54:46	61:39	47:53	57:43	78:22	25-May	2-May	to	26-Jun
1993	200	58:42	61:39	57:43	65:35	83:17	2-Jun	10-May	to	28-Jun
1994	249	59:41	66:34	52:48	58:42	80:20	28-May	10-May	to	21-Jun
1995	140	47:53	61:39	30:70	43:57	66:34	6-Jun	14-May	to	10-Jul
1996	261	61:39	75:25	54:46	67:33	89:11	30-May	10-May	to	8-Jul
1997	205	54:46	78:22	41:59	61:39	88:12	30-May	10-May	to	24-Jun
1998	361	59:41	73:27	53:47	66:34	88:12	25-May	8-May	to	30-Jun
1999	453	59:41	69:31	51:49	59:41	82:18	6-Jun	11-May	to	5-Jul
2000	379	60:40	82:18	51:49	68:32	92:8	27-May	3-May	to	3-Jul
2001	570	52:48	62:38	47:53	65:35	83:17	31-May	3-May	to	7-Jul
2002	376	59:41	64:36	56:44	63:37	83:17	5-Jun	5-May	to	29-Jul
2003	460	64:36	74:26	58:42	65:35	88:12	3-Jun	6-May	to	17-Jul
2004	251	50:50	56:44	47:53	51:49	70:30	25-May	5-May	to	30-Jun
2005	209	64:36	80:20	56:44	59:41	88:12	1-Jun	9-May	to	14-Jul
2006	163	61:39	70:30	54:46	48:52	76:24	1-Jun	10-May	to	8-Jul
2007	172	55:45	55:45	56:44	70:30	84:16	27-May	6-May	to	4-Jul
2008	104	53:47	56:44	53:47	76:24	88:12	5-Jun	10-May	to	22-Jul
2009	173	58:42	64:36	55:45	68:32	87:13	30-May	9-May	to	12-Jul
2010	128	47:53	58:42	38:62	55:45	76:24	5-Jun	9-May	to	6-Jul
2011	**150**	**57:43**	**61:39**	**46:54**	**57:43**	**83:17**	**5-Jun**	**8-May**	**to**	**15-Jul**

RUFFED GROUSE RESULTS

In 2011, a total of 314 ruffed grouse wings and tails were collected in Oregon, a 28% decrease from the recent 5-year average. The number of wings collected from western Oregon was down 76% from the recent 5-year average and was one of the lowest samples obtained in years which wings and tails have been actively collected in western Oregon. Submissions in Eastern Oregon were also down by 25% from the previous 5-year average (Table 1). The 2011 ruffed grouse hunting season allowed a daily bag limit of 3 birds with 6 in possession. Statewide the season began 1 September and extended through 31 December in eastern Oregon and 31 January 2011 in western Oregon (western Oregon included Hood River and Wasco counties for season dates). Timing of harvest was typical with 18% of the ruffed grouse represented by parts submissions during the first week of the season and 48% were harvested during the first 4 weeks of the season (Figure 3). A second peak in harvest occurred during the first week in October and coincided with start of many firearms deer seasons.

In eastern Oregon, 286 samples were collected, a 25% decrease from the recent 5-year average of 380. Most of the samples collected in eastern Oregon were from Grant, Union, and Wallowa Counties. In western Oregon, only 27 ruffed grouse samples were collected, a 76% decrease from the recent 5-year average. Douglas County accounted for 16 of the submissions while the rest came from 5 different northwest Oregon counties.

Age and Sex Ratios

Because of the lack of tails, or the rump feathers attached to the tail, gender could not be determined for 50% and 30% percent of the submissions from eastern and western Oregon, respectively. Age was determined for 96% and 100% of the samples from eastern and western Oregon, respectively.

In eastern Oregon, 61% of ruffed grouse samples were from immatures and 56% of submissions from western Oregon were immatures (Table 4). The proportion of immatures indicates about average production in eastern Oregon and western Oregon; however, sample sizes for western Oregon were very small. An analysis of wings from the previous 26 years in Oregon found that immatures accounted for 33–74% of the sample. Ruffed grouse populations

in other states have also displayed highly variable productivity that ranged from 39–80% of immatures in fall populations (Dorney 1963, Davis and Stoll 1973). The differences in production may be related to local variations and naturally occurring population cycles.

Males of all ages accounted for 45% and 32% of wings collected from eastern and western Oregon, respectively. The proportion of adult wings that were male was 44% and 25% for eastern Oregon and western Oregon, respectively. Males accounted for 55–61% of the adult population in several states in the mid-West (Dorney 1963, Davis and Stoll 1973, Major and Olson 1980). In 2011, males were 45% of the immature birds submitted from eastern Oregon. Sex ratios may lack accuracy because 50% of the eastern Oregon samples and 30% of western Oregon samples lacked diagnostic feathers for gender identification and sample sizes in western Oregon were very small.

Hatching Chronology

The mean hatch date for ruffed grouse collected during the 2011 hunting season was 6 June for eastern Oregon (Table 4). No mean is presented for western Oregon since only 3 birds harvested prior to October 10 could have hatching date calculated. Similar to "blue" grouse peak hatch dates for ruffed grouse this year were about one week later than normal. Hatching dates ranged from 5 May to 9 July for eastern Oregon, respectively. Most (75%) of the ruffed grouse in Oregon hatched from 24 May to 18 June (Figure 4).

Wallowa County - 1983 to 2011

From 1983 through 2011, hunters submitted 5,694 ruffed grouse wings and tails from Wallowa County. Productivity (percent immatures [62 %]) in the 2011 wing sample was greatly improved from the 43% observed last year. Wing data collected since 1983 in Wallowa County indicated exceptional production from 1983–1990, then age ratios declined and stabilized until they again increased in 1999 through 2001. Age ratios have since been stable and slightly higher than during the early 90s except for 2004 and 2010. The ratio of males (46%) in the 2010 sample is below the long-term average (~58%), however only 37 submissions contained the diagnostic feathers to determine sex. The mean hatch date of 4 June was 2 days earlier

than last year but still later than the mean of 30 May. A large proportion (53%) of hunter submissions continue to lack the diagnostic rump feathers or other keys to gender identification and may confound results for sex ratios.

Douglas County – 2011

Since 1985, parts representing 1,350 ruffed grouse have been examined from Douglas County in southwestern Oregon, with only 16 collected in 2011. Collection numbers were well below the long-term average of 53.

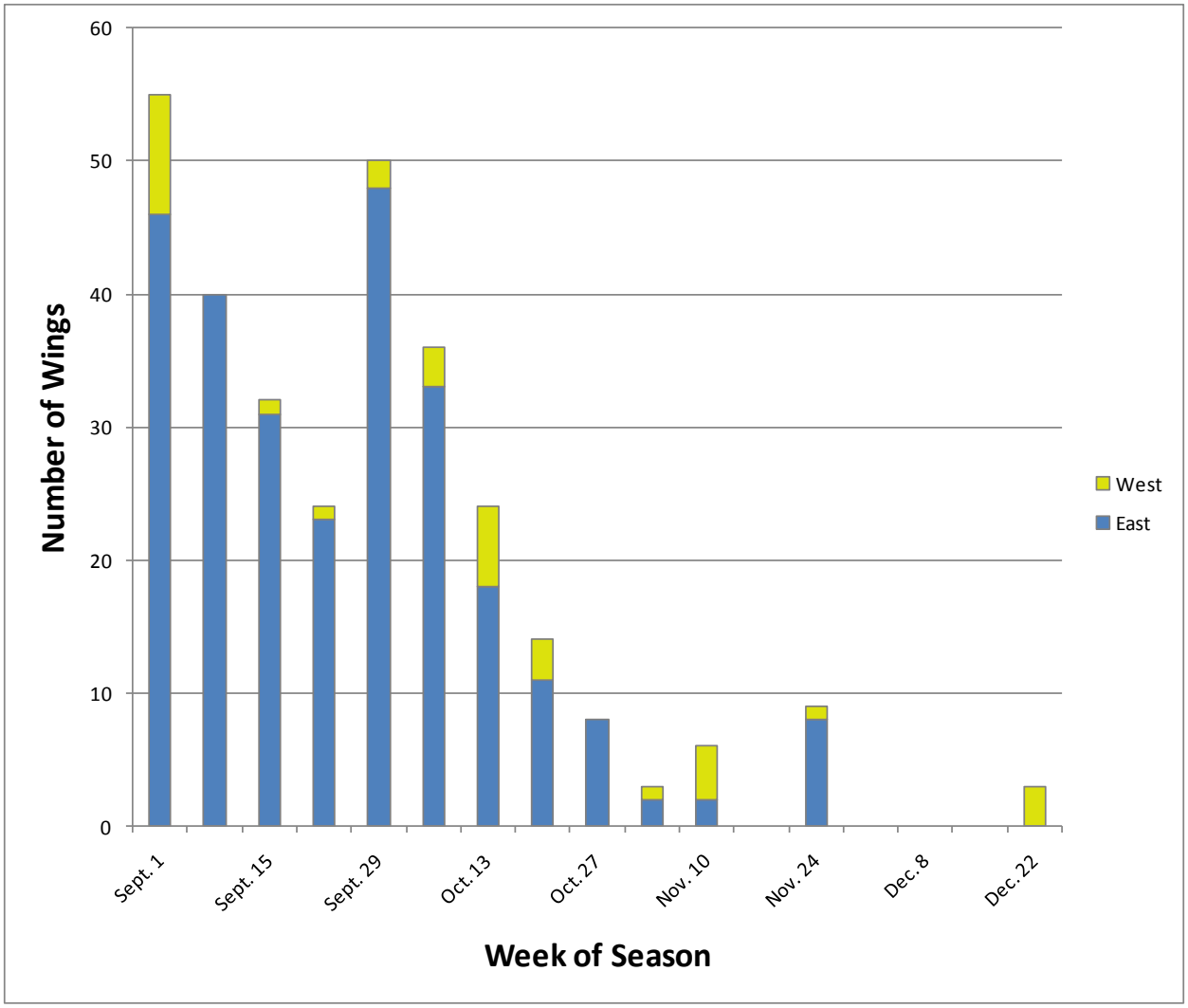

Figure 3. The number of ruffed grouse, as represented by wing/tail collections, by week of reported harvest during 2011-12 Oregon hunting season.

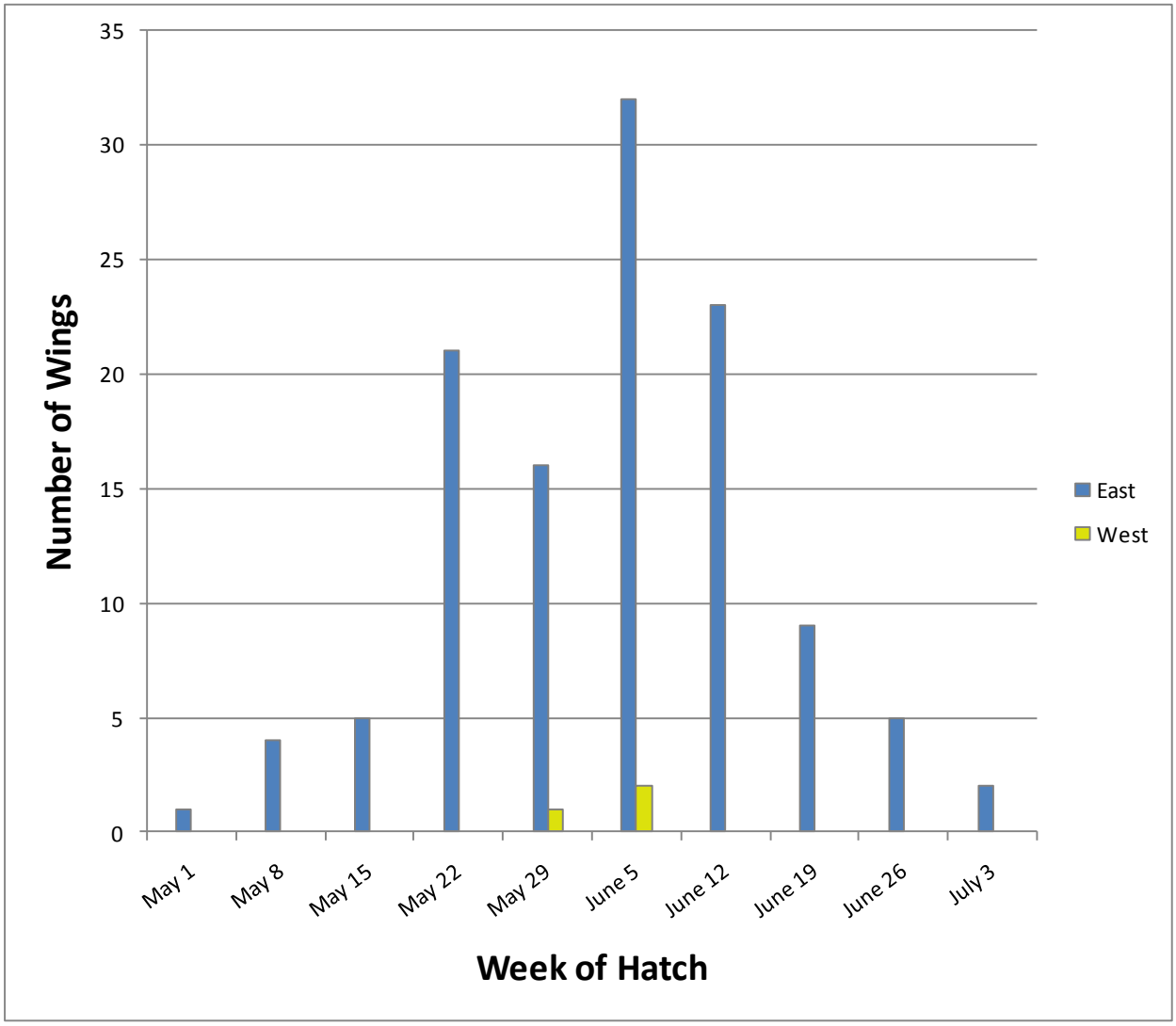

Figure 4. Hatching weeks of immature ruffed grouse as determined by the progression of primary feather molt of wings submitted by hunters from grouse shot during the 2011-12 hunting seasons.

Table 4. Sex ratios, age ratios and hatching dates of ruffed grouse as determined from parts submitted by hunters from Oregon harvest during the 2011-12 hunting season. Individual counties with sample sizes >20 wings are also listed.

	Sex Ratios				Age Ratios			Projected Hatch		
County	*n*	M:F	AM:AF	IM:IF	*n*	I:A	I:AF	*n*	Mean Hatch	Hatch Range
Grant	49	49:51	50:50	48:52	83	49:51	76:24	29	13-Jun	12-May to 9-Jul
Union					39	77:23	88:12	24	8-Jun	21-May 7-Jul
Wallowa	56	46:45	43:57	50:50	117	62:38	82:18	45	5-Jun	5-May to 21-Jun
All East Counties	143	45:55	44:56	44:56	275	61:39	81:19	115	7-Jun	5-May to 9-Jul
Statewide	**163**	**44:56**	**42:58**	**44:56**	**303**	**60:40**	**81:19**	**118**	**7-Jun**	**5-May to 9-Jul**

Table 5. Sex ratios, age ratios and hatching dates of ruffed grouse as determined from parts submitted by hunters from grouse harvested in Wallowa County, Oregon, 1983 to 2011.

		Sex Ratios			Age Ratios		Hatch Information			
Season	*n*	M:F	AM:AF	IM:IF	I:A	I:AF	Mean	Range		
1983	70				83:17					
1984	47	50:50	0:100		66:34	97:3	5-Jun	22-May	to	20-Jun
1985	193	56:44	64:36	52:48	75:25	92:8	28-May	3-May	to	7-Jul
1986	395	61:39	69:31	56:44	72:28	93:7	29-May	5-May	to	14-Jul
1987	372	59:41	51:49	64:36	70:30	88:12	27-May	4-May	to	28-Jun
1988	212	69:31	78:22	64:36	68:32	95:5	1-Jun	13-May	to	1-Jul
1989	139	55:45	50:50	57:43	74:26	90:10	2-Jun	2-May	to	29-Jun
1990	189	61:39	71:29	56:44	67:33	93:7	28-May	11-May	to	20-Jun
1991	155	64:36	62:38	65:35	63:37	88:12	3-Jun	7-May	to	6-Jul
1992	220	65:35	64:36	66:34	61:39	87:13	27-May	30-Apr	to	5-Jul
1993	55	65:35	71:29	60:40	62:38	86:14	1-Jun	15-May	to	2-Jul
1994	112	53:47	52:48	54:46	55:45	76:24	25-May	12-May	to	26-Jun
1995	84	61:39	68:32	52:48	57:43	89:11	30-May	12-May	to	26-Jun
1996	180	62:38	70:30	54:46	57:43	85:15	29-May	3-May	to	20-Jun
1997	169	61:39	84:16	34:66	58:42	92:8	31-May	3-May	to	18-Jun
1998	279	53:47	59:41	48:52	55:45	81:19	25-May	7-May	to	26-Jun
1999	370	44:56	48:52	41:59	64:36	89:11	2-Jun	8-May	to	6-Jul
2000	339	61:39	67:33	55:45	58:42	89:11	26-May	3-May	to	21-Jul
2001	434	61:39	75:25	50:50	62:38	92:8	31-May	7-May	to	14-Jul
2002	165	51:49	60:40	42:58	56:44	83:17	5-Jun	11-May	to	7-Jul
2003	284	65:35	66:34	64:36	54:46	87:13	1-Jun	8-May	to	3-Jul
2004	98	48:52	57:43	35:65	49:51	76:24	28-May	7-May	to	18-Jun
2005	180	53:47	68:32	41:59	58:42	89:11	1-Jun	6-May	to	1-Jul
2006	152	56:44	62:38	48:52	59:41	87:13	26-May	5-May	to	10-Jul
2007	198	49:51	55:45	41:59	58:42	83:17	25-May	2-May	to	15-Jun
2008	94	56:44	61:39	52:48	63:37	87:13	4-Jun	7-May	to	27-Jun
2009	222	66:44	75:25	58:42	69:31	94:6	30-May	6-May	to	6-Jul
2010	167	54:46	56:44	50:50	43:57	73:27	6-Jun	14-May	to	28-Jun
2011	**120**	**46:45**	**43:57**	**50:50**	**62:38**	**82:18**	**5-Jun**	**5-May**	**to**	**21-Jun**

SPRUCE GROUSE

Wing Collections – 1985 to 2011

Incidental to the harvest of dusky and ruffed grouse in Baker, Wallowa and Union counties, 175 spruce grouse wings and tails were collected from wing barrels from 1985 through 2011. During 2011, three spruce grouse wings were collected from Wallowa County and five from Union County. Wallowa County typically had the highest incidental harvest of spruce grouse, and likely harbors the largest amount of spruce grouse habitat. The 1988 wing bee recorded the highest number of spruce grouse wings (27). During 1997, wings were obtained from Baker County for the first time, likely related to an increased effort in wing collection rather than range expansion. During the past 25 years, immatures and adults composed nearly equal proportions of the sample. Oregon is on the southwest periphery of the natural range of spruce grouse and they are currently listed as vulnerable on Oregon's Sensitive Species List.

Mike Baird, under contract to ODFW, and students from Enterprise High School initiated a pilot project in 2005 to collect basic life history information about spruce grouse in Wallowa County, particularly the McCully Basin. This project continued through 2010 and is ongoing. Several birds have been captured and marked over the years and followed into the winter. Interestingly, a bird Mike captured, banded and radio collared on September 2, 2005 was photographed the past April (2012). The photo was clear enough to read the leg band number which enabled identification. The bird was an adult male when banded making this grouse at least seven years old. Mike has also surveyed historic areas for the presence of spruce grouse. Mike and his students continue to solicit spruce grouse observations from the public and to educate hunters. They have also embarked on effort to compare the genetics of Oregon spruce grouse with those from populations in Washington and Idaho.

CONCLUSIONS

The number of hunter harvested forest grouse parts submitted to ODFW was down slightly from the previous year (738 wings in 2011 as compared to 812 wings in 2010); however, this is likely due to lower forest grouse harvest in 2011-12 (38,500 birds) as compared to 2010-

11 (43,000 birds) and not the result of decreased participation. For all species (ruffed, sooty and dusky grouse), mean hatch dates in 2011 were similar to last year and among the latest recorded. However, the number of immature grouse was higher than last year, suggesting relatively better production in most areas of the state.

Sample submissions for western Oregon continue to remain disproportionately low and this year samples were extremely low. In 2011, about 47% of the statewide "blue" grouse harvest occurred in western Oregon and yet wings from western Oregon represented less than 5% of the submissions. Similarly, about 65% of the statewide ruffed grouse harvest occurred west of the crest of the Cascades, yet western Oregon ruffed grouse wings accounted for only less than 9% of the sample. This underscores the need for improved collection efforts to provide adequate samples from different regions particularly in areas of northwestern Oregon. Statewide, there is a need to continue education efforts to increase hunter awareness and participation in returning wings and tails. These efforts should emphasize the need for hunters to include both a wing and a tail fan from blue grouse and a wing and a tail fan with attached rump feathers for ruffed grouse gender identification. Continuing hunter education efforts are critical for the success of future wing-bees. Despite the desire for additional wings from Oregon forest grouse hunters, these wing collections still provide a valuable and reasonably low cost method of obtaining demographic profiles of grouse populations.

SUGGESTIONS FOR FUTURE EFFORTS

For future wing-bees I suggest that process of classifying parts submissions should follow the methods used for both the federal waterfowl and our own sage grouse wing-bees. Using this method every submission would be checked twice, the final time by a very experienced checker, to ensure accuracy. This change would require a bit more time for each wing-bee but I project only an additional hour or two will be necessary.

ACKNOWLEDGEMENTS

These data would simply not be available without the continued support and cooperation of Oregon hunters – for this we thank all the hunters who provided wings and tails!

Forest grouse wing collection can also be a large workload for the wildlife districts, and any effort is greatly appreciated, however some districts have embraced this challenge, particularly in Oregon, and the results are self-evident – most of the forest grouse wings collected each year come from four NE Oregon counties – thank you. Thanks to Dave Budeau for reviewing a draft of this report.

LITERATURE CITED

Davis, J.A., and R.J. Stoll, Jr. 1973. Ruffed grouse sex and age ratios in Ohio. Journal of Wildlife Management. 37:133-141.

Dorney, R.S. 1963. Sex and age structure of Wisconsin ruffed grouse populations. Journal of Wildlife Management. 27:599-603.

Hansen, M.C., C.A. Hagen, T.M. Loughin, D.A. Budeau, V.C. Coggins, and B.S. Reishus. 2012 Temporal Changes in Age and Sex Rations of Forest Grouse Harvested in Northeast Oregon. Journal of Wildlife Management. 76:356-362.

Major, P.D., and J.C. Olson. 1980. Harvest statistics from Indiana ruffed grouse season. Wildlife Society Bulletin. 8:18-23.

Zwickel, F.C., J.H. Brigham, and I.O. Buss. 1975. Autumn structure of blue grouse populations in north-central Washington. Journal of Wildlife Management. 39:461-467

Appendix A. "Blue" grouse wings collected by county, 1980-2011.

County	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Baker							2	23		1					16	
Grant						27	18	60	24	32	4					
Harney									1							
Malheur									1							
Morrow							3									
Umatilla						2	37	41		12	6	18	3	8	2	17
Union						21	192	243	171	81	104	30	53	27		19
Wallowa	59	125	95	166	155	275	596	719	463	372	291	260	286	234	242	140
Wheeler																
Total Dusky Grouse	59	125	95	166	155	325	848	1,086	660	498	405	308	342	269	260	176
Deschutes																
Hood River										7						
Jefferson																
Klamath										17	7					
Lake									27	48	11		38		5	
Wasco										3						
Total East Slope Sooty Grouse	0	0	0	0	0	0	0	0	27	75	18	0	38	0	5	0
Clackamas							1									
Clatsop																
Columbia																
Coos													2			
Curry																
Douglas					24	92	51	67	48	49	32	45	68	17	12	
Jackson						6	19	13		5			2			
Josephine																
Lane					40	82	59	23	16	23	4	1				
Linn						4					1					
Marion													3			
Polk																
Tillamook																
Washington																
Yamhill																
Total Western Sooty Grouse	0	0	0	0	64	184	130	103	64	77	37	46	75	17	12	0
Unknown													8			
Total "Blue" Grouse	**59**	**125**	**95**	**166**	**219**	**509**	**978**	**1,189**	**751**	**650**	**460**	**354**	**463**	**286**	**277**	**176**

Appendix A, continued

County	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Baker	84	153	100	69	114	178	146	162	54	84	34	17	76	87	50	65
Grant	13	5	29	49	28	53	37	51	66	50	18	32	93	77	55	69
Harney									2	3	3	7	5	2		5
Malheur				1						5				6		
Morrow									15	1		12	5	12	11	32
Umatilla	4	4	15	18	9	5	12	8	6	4		1	2	5	2	2
Union	79	104	90	104	68	165	86	110	69	49	54	32	62	79	48	33
Wallowa	260	204	364	451	384	567	376	460	252	209	163	172	104	173	128	150
Wheeler											1					
Total Dusky Grouse	440	470	598	692	603	968	657	791	464	405	273	273	347	441	294	356
Deschutes										1	3				2	
Hood River								5	7	15	12	8	5	26	10	7
Jefferson										1						1
Klamath							3		18	10		7	2	10	2	
Lake		13	18	44			4		38	28	24	16		27	17	29
Wasco							1		10	22	6	8	10	7	4	4
Total East Slope Sooty Grouse	0	13	18	44	0	0	8	5	73	77	45	39	17	70	35	41
Clackamas								4		2	4		3	15		
Clatsop								1	1				1	1		
Columbia									2							
Coos								3	2	6				3		
Curry							3	7	9			12	1	2	5	
Douglas				67	9	36	58	122	38	31	13	28	29	48	12	12
Jackson							17	11	15	4	3	5	4	2	8	
Josephine														1		
Lane				8			19	8	16	6	5	8	9	33	3	1
Linn											6	4	4	5	3	
Marion									3	2	1		2	12	4	3
Polk									1					1		
Tillamook											2			7	1	3
Washington											1					
Yamhill														1		
Total Western Sooty Grouse	0	0	0	75	9	36	97	156	87	51	35	57	53	131	36	19
Unknown								7				1			1	
Total "Blue" Grouse	**440**	**483**	**616**	**811**	**612**	**1,004**	**762**	**959**	**624**	**533**	**353**	**370**	**417**	**642**	**366**	**416**

Appendix B. Ruffed grouse wings collected by county. 1981-2011

County	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Baker						7	13								
Crook															
Grant					69	46	59	59	45	2					
Harney									1						
Malheur															
Morrow															
Umatilla					11	36	56		15	6			5	4	10
Union					11	326	345	163	105	158	64	121	18		45
Wallowa					183	396	373	213	139	184	165	219	55	117	84
Total Northeast Oregon	16	0	0	0	274	811	846	435	305	350	229	340	78	121	139
Deschutes															
Hood River															
Jefferson															
Klamath															
Lake												1			
Wasco									2	2					
Total East Slope Cascades	0	0	0	0	0	0	0	0	2	2	0	1	0	0	0
Benton															
Clackamas					2	14									
Clatsop															
Columbia															
Coos									1			4			
Curry															
Douglas					7	17	47	19	13	40	67	104	24		
Jackson					7	12	11		2	2		4			
Josephine															
Lane					50	95	23	8	28		5	13			
Lincoln					1	6		2		3		3	1		
Linn					3							1			
Marion															
Tillamook															
Washington															
Yamhill															
Total Western Oregon	0	0	0	0	70	144	81	29	44	45	72	129	25	0	0
Unknown												5			
Total Ruffed Grouse	**16**	**0**	**0**	**0**	**344**	**955**	**927**	**464**	**351**	**397**	**301**	**475**	**103**	**121**	**139**

Appendix B, continued.

County	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Baker	56	24	61	24	31	29	25	32	12	9	17	27	21	18	14	24
Crook															3	
Grant	34	26	82	83	87	98	128	75	90	68	57	87	63	123	72	83
Harney									4						2	
Malheur									3							
Morrow									3	1		1	7	12	3	10
Umatilla	26	15	27	31	44	14	15	13	15	4		8	3	7	1	3
Union	163	163	189	146	200	260	167	160	83	109	102	60	107	98	47	39
Wallowa	181	178	299	371	342	462	165	270	99	181	152	198	94	222	167	120
Total Northeast Oregon	460	406	658	655	704	863	500	550	309	372	328	381	295	480	309	279
Deschutes													2			
Hood River							7	14	24	22	18	4	7	15	5	5
Jefferson														2		
Klamath							5		7	1	1	2			1	
Lake		5	1							1						
Wasco									12	11	10	8	10	10	7	2
Total East Slope Cascades	0	5	1	0	0	0	12	14	43	35	29	14	19	27	13	7
Benton									1							
Clackamas							3	13	2	2			1	22	2	
Clatsop								1		1			1	1		
Columbia								18	10	2		1		9	1	
Coos							3	12	15	3	2	5	2	34	13	
Curry							4	11	10	1		13		5	3	
Douglas		3		71	74	129	155	163	103	55	10	33	38	106	60	16
Jackson							19	18	4	2		8	9	7	9	
Josephine								3	2					1		
Lane							31	5	25	3	9	9	5	32	4	1
Lincoln							4	3	2			1		1		
Linn											6	1	4	10	7	4
Marion								3	2	3		6	3	11	12	3
Tillamook									1		4	1		15	3	1
Washington							4		30		2					
Yamhill														5	1	2
Total Western Oregon	0	3	0	71	74	129	223	250	207	72	33	78	63	259	115	27
Unknown								12	1	3			2			1
Total Ruffed Grouse	**460**	**414**	**659**	**726**	**778**	**992**	**735**	**826**	**560**	**482**	**390**	**473**	**379**	**766**	**437**	**314**

Appendix C. Spruce grouse wings collected in Oregon, 1985-2011.

Year	County	Location	Age	Sex	Date of Harvest
1985	Union	Lick/Catherine Crs.	A	M	7 September
1985	Union	Point Prominence	I	F	2 October
1985	Wallowa	Little Sheep Cr.	A	F	5 October
1985	Wallowa	Unknown	A	M	Unknown
1985	Wallowa	Memaloose	I	M	12 September
1985	Wallowa	Jaynes Ridge	I	?	2 September
1986	Wallowa	Little Sheep Cr.	A	M	31 August
1986	Wallowa	Little Sheep Cr.	A	M	31 August
1986	Wallowa	Little Sheep Cr.	A	F	31 August
1986	Wallowa	Little Sheep Cr.	A	M	17 September
1986	Wallowa	Little Sheep Cr.	I	M	17 September
1986	Wallowa	Little Sheep Cr.	A	F	17 September
1987	Union	Mt. Harris	A	M	30 August
1987	Union	Mt. Harris	A	M	30 August
1987	Wallowa	Little Sheep Cr.	A	M	9 October
1987	Wallowa	Jaynes Ridge	A	F	8 September
1987	Wallowa	Jaynes Ridge	I	M	8 September
1987	Wallowa	Jaynes Ridge	I	F	8 September
1988	Union	Point Prominence	A	F	27 August
1988	Union	Point Prominence	I	M	27 August
1988	Union	Point Prominence	A	M	1 October
1988	Wallowa	Little Sheep Cr.	A	F	18 September
1988	Wallowa	Little Sheep Cr.	A	F	26 September
1988	Wallowa	Little Sheep Cr.	A	M	13 September
1988	Wallowa	Little Sheep Cr.	I	F	13 September
1988	Wallowa	Little Sheep Cr.	I	M	13 September
1988	Wallowa	Little Sheep Cr.	I	F	13 September
1988	Wallowa	Little Sheep Cr.	A	M	13 October
1988	Wallowa	Little Sheep Cr.	A	F	13 October
1988	Wallowa	Little Sheep Cr.	I	M	13 October
1988	Wallowa	Little Sheep Cr.	I	F	13 October
1988	Wallowa	Little Sheep Cr.	A	M	13 October
1988	Wallowa	Little Sheep Cr.	A	F	13 October
1988	Wallowa	Little Sheep Cr.	I	F	13 September
1988	Wallowa	Little Sheep Cr.	I	F	13 September
1988	Wallowa	Little Sheep Cr.	A	F	13 September
1988	Wallowa	Little Sheep Cr.	A	M	Unknown
1988	Wallowa	Little Sheep Cr.	A	F	Unknown
1988	Wallowa	Little Sheep Cr.	A	F	Unknown
1988	Wallowa	Little Sheep Cr.	I	M	Unknown
1989	Wallowa	Little Sheep Cr.	A	M	4 September
1989	Wallowa	Carrol Cr	A	F	9 September

Appendix C, continued.

Year	County	Location	Age	Sex	Date of Harvest
1989	Wallowa	Carrol Cr.	I	M	9 September
1989	Wallowa	Jaynes Ridge	I	F	21 September
1989	Wallowa	Jaynes Ridge	I	M	21 September
1989	Union	Ladd Canyon	A	M	3 September
1989	Wallowa	Little Sheep Cr.	A	M	28 August
1989	Wallowa	Little Sheep Cr	A	F	28 August
1989	Wallowa	Little Sheep Cr	I	F	28 August
1989	Wallowa	Little Sheep Cr	I	?	28 August
1989	Wallowa	Little Sheep Cr	A	?	28 August
1989	Wallowa	Little Sheep Cr	I	F	28 August
1989	Wallowa	Cloverdale	I	M	4 September
1989	Wallowa	Cloverdale	I	F	4 September
1989	Wallowa	Cloverdale	I	F	4 September
1989	Wallowa	Cloverdale	I	F	4 September
1989	Wallowa	Cloverdale	I	F	4 September
1989	Wallowa	Unknown	A	F	Unknown
1989	Wallowa	Unknown	I	?	Unknown
1989	Wallowa	Unknown	I	?	Unknown
1990	Wallowa	Little Sheep Cr.	A	F	4 September
1990	Wallowa	Little Sheep Cr.	I	M	4 September
1990	Wallowa	Little Sheep Cr.	I	F	4 September
1990	Wallowa	Little Sheep Cr.	I	M	Unknown
1990	Wallowa	Little Sheep Cr.	A	M	Unknown
1990	Wallowa	Little Sheep Cr.	I	M	Unknown
1991	Wallowa	Lick Cr.	I	M	14 September
1991	Wallowa	Lick Cr.	A	F	14 September
1991	Wallowa	Lick Cr.	I	M	11 October
1991	Wallowa	Lick Cr.	I	M	11 October
1991	Wallowa	Lick Cr.	I	F	11 October
1991	Wallowa	Lick Cr.	I	M	11 October
1991	Wallowa	Sheep Cr.	I	F	4 September
1991	Wallowa	Sheep Cr.	I	M	4 September
1991	Wallowa	Sheep Cr.	I	F	4 September
1992	Wallowa	Little Sheep Cr.	I	F	8 September
1992	Wallowa	Little Sheep Cr.	A	F	8 September
1992	Wallowa	Mt. Harris	A	M	9 September
1992	Wallowa	Mt. Harris	I	M	Unknown
1993	Wallowa	Little Sheep Cr.	A	F	9 September
1993	Wallowa	Little Sheep Cr.	I	M	9 September
1993	Wallowa	Little Sheep Cr.	I	F	9 September
1994	Wallowa	Little Sheep Cr.	A	F	18 October

Appendix C, continued.

Year	County	Location	Age	Sex	Date of Harvest
1994	Wallowa	Little Sheep Cr.	I	M	18 October
1994	Wallowa	Unknown	A	F	Unknown
1995	Wallowa	Little Sheep Cr.	I	F	21 September
1995	Wallowa	Little Sheep Cr.	A	F	21 September
1995	Wallowa	Little Sheep Cr.	I	M	21 September
1996	Union	Catherine Cr.	I	M	4 October
1996	Union	Catherine Cr.	I	M	4 October
1996	Union	Catherine Cr.	A	M	7 September
1996	Union	Catherine Cr.	I	M	3 September
1996	Union	Catherine Cr.	A	F	3 September
1996	Union	Catherine Cr.	I	F	3 September
1996	Union	Mt. Harris	A	F	12 September
1996	Union	Mt. Harris	I	F	12 September
1996	Union	Mt. Harris	I	F	12 September
1996	Wallowa	Jaynes Ridge	A	F	Unknown
1997	Baker	Eagle Fork	A	F	6 September
1997	Baker	Eagle Fork	I	M	6 September
1997	Baker	Eagle Fork	A	M	6 September
1997	Baker	Eagle Fork	I	F	6 September
1997	Baker	Eagle Fork	A	M	4 October
1997	Baker	Eagle Fork	A	M	3 September
1997	Wallowa	Little Sheep Cr.	A	M	20 September
1998	Wallowa	Salt Cr. Summit	A	M	4 October
1999	Union	Hess Cabin Rd.	I	F	6 September
1999	Union	Hess Cabin Rd.	A	F	6 September
1999	Union	Mt. Harris	A	F	11 September
1999	Wallowa	Little Sheep Cr.	A	M	9 October
2000	Wallowa	Little Sheep Cr.	A	?	5 September
2000	Wallowa	Little Sheep Cr.	I	?	5 September
2000	Wallowa	Little Sheep Cr.	A	?	5 September
2000	Wallowa	Little Sheep Cr.	I	?	5 September
2000	Wallowa	Little Sheep Cr.	I	?	5 September
2000	Wallowa	Little Sheep Cr.	I	?	5 September
2001	Union	Catherine Cr.	A	F	22 September
2001	Union	Mt. Harris	A	F	10 September
2001	Union	Mt. Harris	A	F	10 September
2001	Union	Mt. Harris	I	M	24 September
2001	Union	Mt. Harris	I	F	24 September
2001	Union	Mt. Harris	I	F	24 September
2001	Wallowa	Little Sheep Cr.	I	M	2 September
2001	Wallowa	Little Sheep Cr	I	M	2 September

Appendix C, continued.

Year	County	Location	Age	Sex	Date of Harvest
2001	Wallowa	Little Sheep Cr	I	F	2 September
2001	Wallowa	Little Sheep Cr	I	F	2 September
2001	Wallowa	Little Sheep Cr	A	F	2 September
2001	Wallowa	Little Sheep Cr	I	F	6 October
2001	Wallowa	Lick Cr.	A	M	4 September
2002	Union	Prominence Pt	I	U	22 September
2002	Wallowa	Little Sheep Cr.	A	M	13 October
2002	Wallowa	Little Sheep Cr.	A	M	13 October
2003	Wallowa	Door Cr.	A	F	1 September
2003	Union	Catherine Cr.	I	U	12 September
2003	Union	Catherine Cr.	A	U	Unknown
2004	Wallowa	Little Sheep	A	F	2 October
2005	Baker	Pine Cr. Meadows	I	M	25 September
2005	Baker	Pine Cr. Meadows	I	M	25 September
2005	Union	Mt. Harris	A	M	28 September
2005	Union	Buck Cr.	A	F	6 September
2005	Union	Pt. Prominence	A	F	3 September
2005	Union	Pt. Prominence	A	F	3 September
2005	Union	Pt. Prominence	I	M	3 September
2005	Union	Pt. Prominence	I	M	3 September
2006	Wallowa	Little Sheep Cr.	A	M	25 September
2006	Wallowa	Lostine River	I	F	10 October
2007	Union	Mt. Harris	I	M	23 September
2007	Union	Hess Cabin	I	F	9 October
2007	Union	Moss Springs	I	F	10 October
2008	Baker	Pine Creek	A	F	2 October
2008	Wallowa	Big Sheep Cr.	A	U	5 October
2008	Wallowa	230 Rd	J	U	5 October
2008	Wallowa	230 Rd	J	U	5 October
2008	Wallowa	3930-040 Rd	A	U	7 October
2008	Wallowa	3930-040 Rd	A	U	8 October
2008	Wallowa	230 Rd	J	U	8 October
2008	Union	NF Catherine Creek	A	F	19 October
2009	Union	Mt. Harris	A	F	9 September
2010	Wallowa	Little Sheep	A	F	10 October
2010	Wallowa	Little Sheep	J	M	10 October
2010	Wallowa	Little Sheep	A	F	10 October
2010	Wallowa	Little Sheep	A	F	2 October
2010	Wallowa	Salt Creek	J	U	2 October
2010	Wallowa	Little Sheep	A	F	10 October
2010	Wallowa	Lick Creek	J	M	25 September

Appendix C, Continued

Year	County	Location	Age	Sex	Date of Harvest
2010	Wallowa	Lick Creek	J	M	25 September
2010	Union	Hess Cabin Rd.	A	M	30 September
2011	Union	2036 Rd	J	M	24 September
2011	Union	Eagle Caps	Y	F	20 September
2011	Union	Eagle Caps	J	U	20 September
2011	Union	Hess Cabin Rd	J	F	12 October
2011	Union	Hess Cabin Rd	A	M	12 October
2011	Wallowa	Unknown	Y	M	Unknown
2011	Wallowa	Unknown	A	M	Unknown
2011	Wallowa	McCully	A	M	7 September