



2016 Forest Grouse Parts Collection Summary



Photo by Keith Kohl
Immature ruffed grouse in the Dixon unit of the Cascades.

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INTRODUCTION

Since 1980, wings and tails of forest grouse 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 2005, wing collection was expanded to include mountain quail.

In 2016, wings and tails of blue¹ (*Dendragapus spp*), ruffed (*Bonasa umbellus*), and spruce grouse (*Falciennis canadensis*) were obtained from 25 of the 36 counties in Oregon (Table 1). A total of 998 wings and tails were examined at 2 forest grouse wing bees. The total number of wings and tails obtained in 2016 was down 47% from the previous year and down 11% from the recent 5 year average of 1,116. Statewide “blue” grouse submissions were down 36% and ruffed grouse wings were down 53% compared to 2015. This decrease from 2015 was expected, in 2015 a record number of ruffed grouse wings were submitted and the number of “blue” grouse wings was also at a peak in comparison to recent years (Figure 1). Spruce grouse wings represent a small proportion of all grouse wing submissions with 4 wings from Wallowa County in 2016, a decrease from the recent 5 year average of 7 wings. There is no open spruce grouse season in Oregon. A small number of wings from mountain quail (*Oreortyx pictus*) have also been collected from hunters. Since 2005, 262 mountain quail wings have been collected. Seven of those wings were collected in 2016, an 89% decrease from 2015.

¹Dusky and Sooty grouse considered collectively as “blue” grouse.

Table 1. Forest grouse wings submitted to the 2016 Oregon forest grouse wing bees at the Umpqua Watershed District Office (Roseburg) on February 1, 2017 and at Ladd Marsh Wildlife Area on March 15, 2017. Wing bee counts from 2015 are provided for comparison.

County	"Blue" Grouse		Ruffed Grouse		Spruce Grouse		Total Wings		% change from 2015
	2016	2015	2016	2015	2016	2015	2016	2015	
Baker	29	16	28	26			57	42	36%
Grant	27	54	77	206			104	260	-60%
Harney	3	3					3	3	0%
Klamath	1		6	5			7	5	40%
Lake	12	44					12	44	-73%
Morrow	26	29	52	132			78	161	-52%
Umatilla	7	2	7	19			14	21	-33%
Union	37	35	74	206		2	111	243	-54%
Wallowa	99	228	118	236	4	6	221	470	-53%
Clackamas	28	5	17	7			45	12	275%
Clatsop	1		1				2	0	
Columbia			17				17	0	
Coos	1		3	2			4	2	100%
Curry	3	9	2	16			5	25	-80%
Douglas	62	122	117	300			179	422	-58%
Hood River	11		6				17	0	
Hood River or Wasco	5		2				7	0	
Jackson	5	14	26	60			31	74	-58%
Josephine	1	1	4				5	1	400%
Lane	13	18	24	21			37	39	-5%
Lincoln			4				4	0	
Linn	5	3	4	7			9	10	-10%
Marion	4	7	2	8			6	15	-60%
Multnomah		1					0	1	-100%
Tillamook	1	1	2	5			3	6	-50%
Wasco	2	13	4	21			6	34	-82%
Washington	1		2	1			3	1	200%
Unknown	5		6	3			11	3	267%
Total	389	605	605	1,281	4	8	998	1,894	-47%

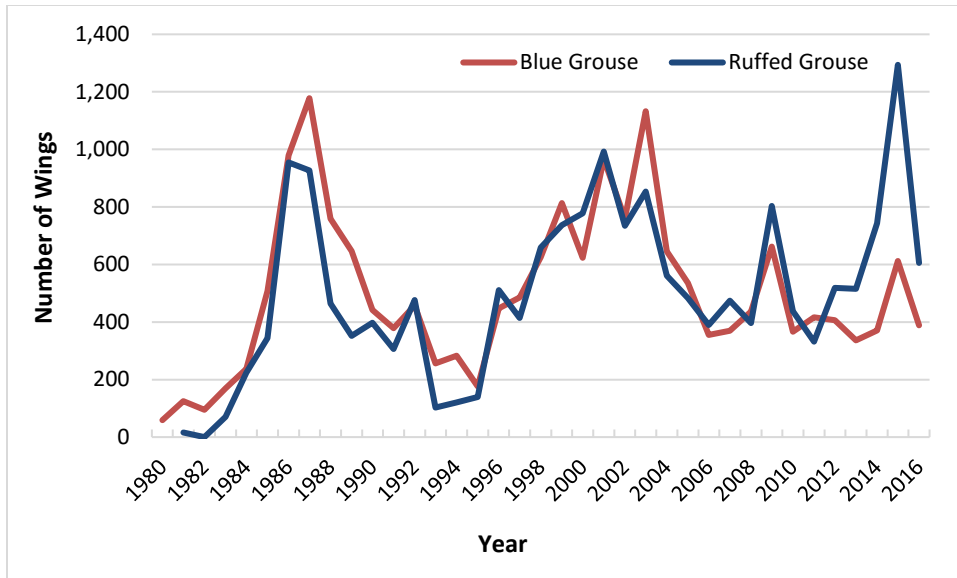


Figure 1. Number of forest grouse wings submitted to wing-bees in Oregon, 1980-2016.

USE OF INFORMATION

Data from wings can be used by biologists to better understand the distribution and timing of grouse harvest in their areas (Figures 3 & 5), the relative proportions of harvest among species, the sex and age structure of the population, and the chronology of breeding activity (Figures 4 & 6). In comparison to other methods for tracking trends in population size and productivity, such as brood route and hunter harvest telephone surveys, data gathered from wings is an effective and low cost method for monitoring trends (Hansen et al. 2015).

Distribution and timing of harvest have relevance to obtaining information about grouse populations, season structure, and to hunter participation for coordination of law enforcement activities. 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 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. Samples obtained through hunter harvest may not adequately reflect sex and age ratios of a population and may change through the course of the season. Age ratios during the

first two weeks of the season provide the best index to reproduction, while there is no significant change in sex ratios during the course of the season (Hansen et al. 2012). This report provides age ratios for the first two weeks of the season and for the entire season. The age ratios for the entire season will allow comparison to data collected in previous years.

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. Over the past several years, districts (Roseburg, North Willamette, Central Point, and Heppner) have been making an effort to add more wing barrels to increase the sample size of wings more evenly across the state. Prior to 2015, there were no wing barrels in Northwest Oregon. Over the past two years, the North Willamette Watershed has installed 5 barrels in Clackamas, 2 in Columbia, 1 in Washington, and 1 in Yamhill County.

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 to 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, social media, and newspaper interviews are utilized when available.

Each winter, biologists gather at wing bees to collect information from the parts. In 2016-17, wing bees were held at Ladd Marsh Wildlife Area and the Umpqua Watershed District Office. Data collected from each set of parts are: species, location and county of kill, date of kill, sex, age, and the stage of primary wing feather molt for immature birds. Age is recorded as adult or immature and in addition, the adult class is further subdivided to adult or yearling (if discernable). 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 on or prior to 10 October (immature molt of primaries 1 through 8 is usually complete by 10 October).

BLUE GROUSE RESULTS

During 2016, 389 wings and tails from “blue” grouse were collected in Oregon, a decrease of about 36% from the previous year and a 9% decrease from the recent 5-year average of 428 wings. The 2016 hunting season allowed a daily bag limit of 3 birds with 9 in possession from 1 September through 31 January. Twenty-eight percent of the wings and tails were harvested during the first week of the season and 61% were harvested by the end of September. 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 (Figure 2).

Sixty-three percent (241) of the wings and tails were obtained from eastern Oregon, a 41% decrease from the number received in 2015. The majority of submissions from eastern Oregon were from Wallowa (41%), Union (15%), Baker (12%), Grant (11%), and Morrow (11%) counties. The remainder of the eastern Oregon submissions came from 4 other counties. One hundred forty three wings and tails were obtained from 14 counties in western Oregon, a 26% decrease from the number received in the previous year. The majority of the submissions were from Douglas (43%), Clackamas (20%), Lane (9%), and Hood River (8%) counties.

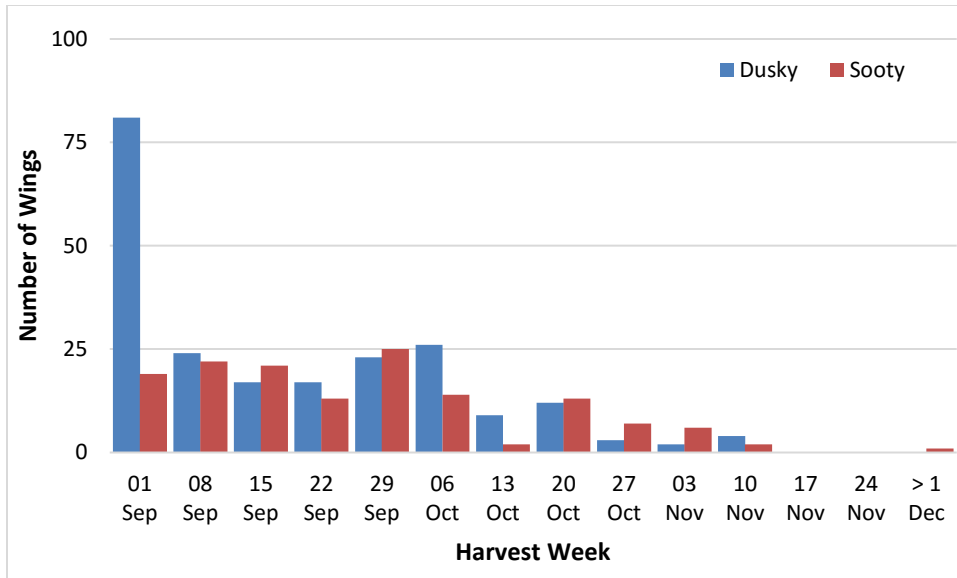


Figure 2. The number of sooty and dusky grouse wing/ tail collections, by week of reported harvest during the 2016-17 Oregon hunting season.

Age and Sex Ratios

Immature grouse comprised 70% of the wings for “blue” grouse during the first two weeks of the season and 67% of the sample from the entire season (Table 2). The proportion of immatures in the harvest indicates above average (~65% immature) production. Males represented 47% of the statewide sample, 63% of adult sample, and 40% of immatures in 2016.

Table 2. “Blue” grouse sex ratios, age ratios and hatch dates by species in 2016 from hunter submitted wings. Ratios are presented for the first two weeks of season and for the entire season. Wings and tails harvested during the first two weeks are the best indicator for age ratios (Hansen et al. 2012). Hatch date is only estimated for grouse harvested on or before October 10.

	<u>Gender Ratios</u>				<u>Age Ratios</u>			<u>Hatch Dates</u>	
	n	M:F	AM:AF	IM:IF	n	I:A	I:AF	n	Mean, Range
Dusky									
1st 2 wks	104	55:45	79:21	47:53	104	73:27	93:7	--	--
Total	227	45:55	63:37	38:62	226	68:32	85:15	102	May 26, May 2 - July 7
Sooty									
1st 2 wks	40	45:55	46:54	46:54	40	65:35	79:21	--	--
Total	158	50:50	63:37	44:56	158	66:34	85:15	58	June 7, May 11 - July 4
All									
1st 2 wks	145	52:48	69:31	47:53	145	70:30	89:11	--	--
All Total	385	47:53	63:37	40:60	384	67:33	85:15	160	May 31, May 2 - July 7

Hatching Chronology

Statewide, hatch dates for dusky and sooty grouse harvested during the 2016 hunting season ranged from 2 May to 7 July, which is similar to previous years (Table 2 & Figure 3). Dusky grouse hatch dates ranged from 2 May to 7 July, the mean hatch date of 26 May was a couple days earlier than average. Sooty grouse hatch dates ranged from 11 May to 4 July, with a mean of 7 June, which is similar to the average from previous years. For dusky grouse, 75% hatched between 12 May and 10 June, while 75% of sooty grouse hatched between 20 May and 23 June. Typical of most years, the peak sooty grouse hatch was later than the peak dusky grouse hatch.

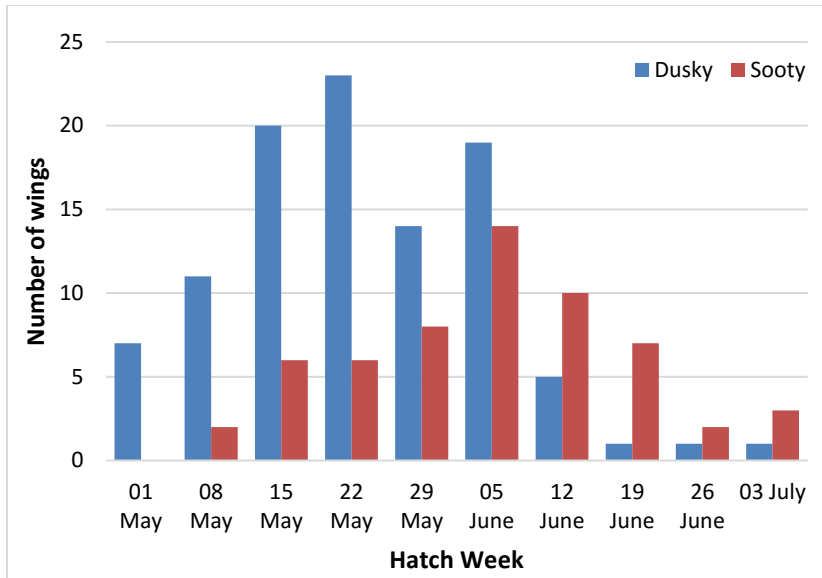


Figure 3. Week of hatch for dusky and sooty grouse in Oregon as estimated from primary feathers from hunter-harvested wings during 2016. Hatch dates were only estimated for birds that were harvested on or before October 10.

Wallowa County – 1980 to 2016

From 1980 - 2016 hunters in Wallowa County submitted parts representing 9,472 dusky grouse. In 2016, 99 wings were collected, which is down 62% from the average since the wing bee began in 1980 and down 24% from the recent 5 year average. Males comprised 51% of the adult sample, which is lower than the long-term average of 66% (Table 3).

The immature proportion of the harvest was above average and suggests good production as the proportion of immatures was at 77% (Table 3). Production has been above 65% since 2013 after a period of lower production (2010-2012). The proportion of immatures in Wallowa County has ranged from a low of 38% in 1982 to a high of 77% in 2016 (1980–2016, $x = 61\%$). Over the past 36 years, dusky grouse populations in Wallowa County appeared to have had 4 years of poor production as measured by a proportion of immatures <50% (1982, 1991, 1995, and 2006) and 15 years of good production as measured by a proportion of immatures >65% (1980, 1983, 1985, 1986, 1989, 1996, 1998, 2000, 2007, 2008, 2009, 2013, 2014, 2015, 2016; Table 3).

Mean hatch dates have ranged from 25 May (1992, 1998, and 2004) to 6 June (1995 and 1999) with the preponderance of young hatched during a 3-week interval between late May and early June (Table 3). In 2016, the mean hatch date was on the early side, 27 May, and ranged from 2 May to 29 June.

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 2016.

Season	n	Sex Ratios			Age Ratios		Hatch Information		
		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
2012	126	46:54	66:34	29:71	52:48	76:24	1-Jun	15-May	to 26-Jun
2013	93	61:39	65:35	59:41	66:34	85:15	2-Jun	5-May	to 30-Jun
2014	59	44:56	78:22	46:54	69:31	91:9	3-Jun	13-May	to 24-Jun
2015	228	66:34	80:20	59:41	65:35	90:10	26-May	5-May	to 4-Jul
2016	99	51:49	65:35	47:53	77:23	90:10	27-May	2-May	to 29-Jun

RUFFED GROUSE RESULTS

In 2016, a total of 605 ruffed grouse wings and tails were collected in Oregon, a 53% decrease from 1,281 wings last year and a 11% decrease from the recent 5 year average of 681 wings. The 2016 ruffed grouse hunting season allowed a daily bag limit of 3 birds with 9 in possession. Statewide the season began 1 September and extended through 31 January. Typically a large portion of the ruffed grouse wings are submitted during the first couple weeks of season, with a second peak in harvest occurring during the start of many firearm big game seasons the beginning of October. This trend was repeated in 2016; the peak of ruffed grouse wing returns occurred during the first week of the grouse season and again during the start of the big game rifle seasons (Figure 4). Twenty-three percent of the ruffed grouse parts (with a harvest date included) were submitted during the first week of the season. As like last year, the number of grouse wings returned dropped considerably after the first couple of weeks of big game rifle seasons. In 2016, 53% of wings were from birds harvested in September and 39% in October.

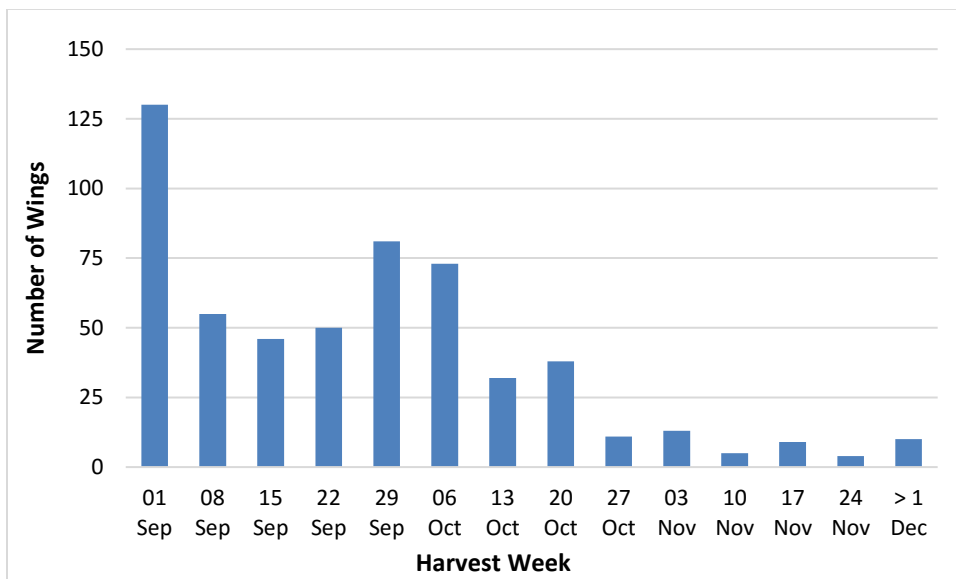


Figure 4. Timing of Oregon’s 2016 ruffed grouse harvest as estimated from ruffed grouse wings with harvest dates.

In eastern Oregon, 362 wings were collected, a 56% decrease from 2015 and below the recent 5 year average of 478. Most of the samples collected in eastern Oregon were from Wallowa, Grant, Union, and Morrow counties. In western Oregon, 237 ruffed grouse samples were collected, a 47% decrease from last year. Wing collection efforts in Douglas County accounted for the majority of the wings, followed by Jackson, Lane, and Clackamas counties. Wings were collected from a total of 16 counties in western Oregon.

Age and Sex Ratios

Because of the lack of tails or the rump feathers attached to the tail, gender could not be determined for 47% of the ruffed grouse submissions. Age was determined for 99% of the samples obtained from eastern and western Oregon. Immature grouse comprised 63% of the eastern Oregon sample during the first two weeks of the season indicating fair production. Most (79%) of the early season ruffed grouse wings were collected in eastern Oregon. Age ratios during the first two weeks of the season provide the best index to reproduction because age ratios in the harvest can change over the course of the season (Hansen et al. 2012). For the entire season, immatures comprised 47% of the statewide harvest of ruffed grouse. In eastern Oregon, 52% of ruffed grouse samples were from immatures and 40% of submissions from western Oregon were immatures (entire season; Table 4). Very good production is indicated by a proportion of immatures to adults that is greater than 65% and poor production is indicated by a proportion less than 50%. An analysis of wings from about 30 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 54% of the samples with sufficient material to determine sex. The proportion of adult wings that were male was 64% and 43% for eastern 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 2016, males were 46% of the immature birds submitted from eastern Oregon. Confidence in the sex ratios would

be improved if sex could be determined for a higher proportion of the samples. In 2016, 53% of the ruffed grouse samples included diagnostic feathers for sex identification.

Table 4. Sex ratios, age ratios and hatching dates of ruffed grouse as determined from parts submitted by hunters from Oregon harvest during the 2016-17 hunting season.

	<u>Gender Ratios</u>				<u>Age Ratios</u>			<u>Hatch Dates</u>	
	n	M:F	AM:AF	IM:IF	n	I:A	I:AF	n	Mean, Range
East	197	56:44	64:36	46:54	360	52:48	84:16	127	May 28 , May 6 - June 30
East, 1st 2 wks	77	49:51	58:42	43:57	147	63:37	88:12	---	---
West	125	50:50	43:57	61:39	239	40:60	70:30	23	May 29, May 14 - June 15
Statewide	323	54:46	56:44	51:49	600	47:53	78:22	150	May 28, May 6 - June 30

Hatching Chronology

The mean hatch date for ruffed grouse collected during the 2016 hunting season was 28 May. Hatch dates were estimated from 150 wings, of which only 23 were from western Oregon. Given the small sample from the west side, wings from both sides of the state were pooled for analysis (Table 4). Similar to “blue” grouse, peak hatch dates for ruffed grouse were a little earlier than average. Hatching dates ranged from 6 May to 30 June (\bar{x} = 28 May), with 75% ruffed grouse in the harvest hatching between 16 May and 9 June (Figure 5).

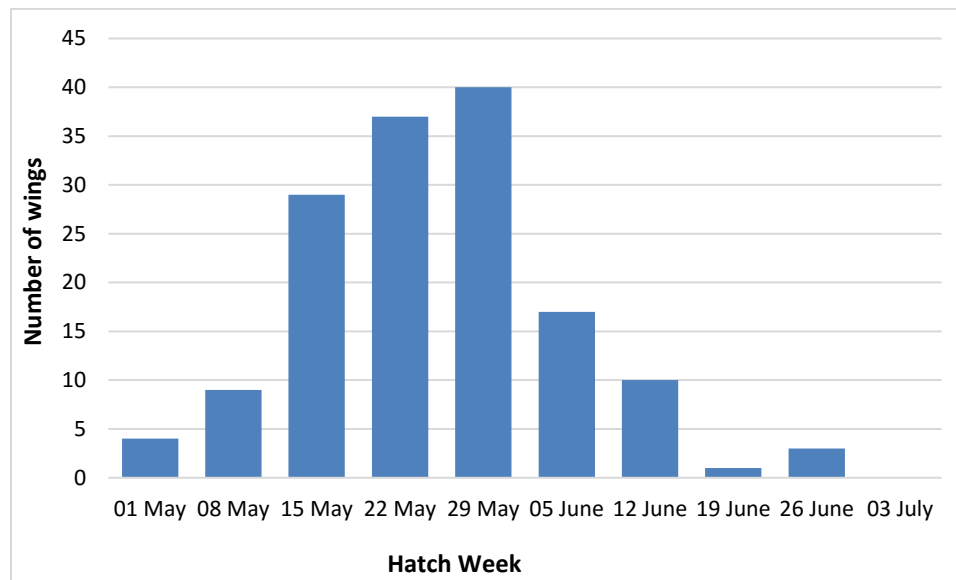


Figure 5. Timing of Oregon’s 2016 ruffed grouse hatch as estimated from 150 wings harvested on or before 10 October.

Wallowa County - 1983 to 2016

From 1983 through 2016, hunters have submitted 6,552 ruffed grouse wings and tails from Wallowa County. The proportion of immatures was 52%, indicating fair production. 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 age ratio in 2014 indicated exceptional production. The ratio of males (57%) in the sample was higher than last year (44%) and similar to the long-term average (~57%), however only half the submissions contained the diagnostic feathers to determine sex. A large proportion of hunter submissions continue to lack the diagnostic rump feathers or other keys to gender identification. The mean hatch date of 26 May was a little earlier than the long term mean of 31 May.

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 2016.

Season	n	Sex Ratios			Age Ratios		Hatch Dates		
		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	150	57:43	61:39	46:54	57:43	83:17	5-Jun	8-May	to 15-Jul
2012	143	47:53	51:49	41:59	55:45	68:32	30-May	6-May	to 1-Jul
2013	174	48:52	54:46	43:57	61:39	70:30	29-May	4-May	to 7-Jul
2014	157	62:38	64:36	61:39	76:24	93:7	30-May	3-May	to 29-Jun
2015	236	44:56	43:57	45:55	59:41	81:19	1-June	12-May	to 26-Jul
2016	118	57:43	68:32	42:58	52:48	85:15	26-May	9-May	to 16-Jun

SPRUCE GROUSE

Wing Collections – 1985 to 2016

Incidental to the harvest of dusky and ruffed grouse in Baker, Wallowa and Union counties, 205 spruce grouse wings and tails were collected from wing barrels from 1985 through 2016. In 2016, 4 spruce grouse wings were collected from Wallowa County, compared to 6 wings collected in Wallowa County and 2 in Union County in 2015. Wallowa County typically has the highest incidental harvest of spruce grouse but Union County has received some spruce grouse wings in recent years. During 1997, spruce grouse wings were obtained from Baker County for the first time, likely related to an increased effort in wing collection efforts rather than range expansion. The 1988 wing bee recorded the highest number of spruce grouse wings (27). During the past 30 years, immatures and adults composed nearly equal proportions of the sample. In 2016, 1 immature wings were received. Oregon is on the southwest periphery of the natural range of spruce grouse.

MOUNTAIN QUAIL

Wing Collections – 2005 to 2016

The 2016 mountain quail season in western Oregon, Hood River, and Wasco counties began 1 September and extended through 31 January with a daily bag limit of 10 quail and a possession limit of 30. In Crook, Grant, Wheeler, Gilliam, Klamath, Umatilla, Morrow, and Wallowa counties the season began 8 October and extended through 31 January with a daily bag limit of 2 and a possession limit of 2. The remaining eastern Oregon counties were closed to mountain quail hunting. Although overall wing collection efforts focus on forest grouse, wing collection bags ask hunters to submit mountain quail wings also. Since 2005, 262 mountain quail wings have been collected, averaging 21 wings per year. Wing collection efforts were down in 2016 with 7 wings collected (compared to 29 in 2014 and 65 in 2015) from 6 counties. All wings collected in 2016 were from immatures.

HARVEST FROM RANDOM PHONE SURVEYS

Each year the Department conducts telephone surveys of upland game bird validation holders to estimate hunter effort and harvest. Data from these surveys can be used in combination with wing bee data to gain a better understanding trends in production and harvest. Estimates of the harvest from random phone surveys of 2016-17 upland game bird validation holders showed a decline (statewide) in both “blue” and ruffed grouse harvest compared to 2015, with “blue” grouse harvest decreasing by 19% and ruffed grouse by 23% (Table 6). Although phone surveys indicated harvest was down in most regions of the state, northwest Oregon showed a 54% increase in “blue” grouse harvest and 15% increase in ruffed grouse harvest compared to 2015. At this time, not enough wings are submitted from the northwest Oregon to analyze trends in production and hatch dates from the wing bee data. For areas with established wing collection programs, such as northeast and southwest Oregon, a decline in the number of wings submitted is often an indicator that harvest was down that year. Estimated harvest for ruffed grouse for region 5 (Baker, Union, and Wallowa counties) from phone surveys showed a 19% decrease from 2015. In comparison, the number of ruffed grouse wings submitted for those 3 northeast counties was down 53%. Estimated dusky grouse harvest from phone surveys for region 5 decreased by 15% from 2015 and wing submissions were down 41%.

Table 6. Estimated harvest of “blue” and ruffed grouse in 2016-17 calculated from random phone surveys of upland game bird validation holders (n = 3,600). The state is divided into 7 harvest regions, a general description of each region is included in parenthesis.

Harvest Region	Estimated Harvest	
	“Blue” Grouse	Ruffed Grouse
Area 1 (Northwest)	3,726	12,646
Area 2 (Southwest)	1,302	5,479
Area 3 (Columbia Basin)	1,573	2,445
Area 4 (Central)	989	2,841
Area 5 (Northeast)	2,507	6,153
Area 6 (Southcentral)	185	222
Area 7 (Southeast)	37	150
Total	10,319	29,936
<i>Change from '15-16</i>	<i>-19%</i>	<i>-23%</i>

SUMMARY

For ruffed, sooty, and dusky grouse, mean hatch dates in 2016 were slightly earlier than average. Statewide, the proportion of immature “blue” grouse (67%) was similar to 2015 (66%), suggesting good production although still not as high as in 2014 (72% immatures). The proportion of immature ruffed grouse (47%) was lower than the last 2 years (57% in 2015 and 56% in 2014) suggesting that production was poor.

The number of wings collected in 2016 was down considerably from 2015, likely for multiple reasons. In 2015 several districts put extra effort into wing collections with additional barrels, production was good in 2015 and excellent in 2014, and overall harvest was higher (as shown by telephone surveys). We hope that as districts install new barrels, the number of wings will increase so that age and sex ratios, as well as hatch dates, can be examined at a finer scale. Even with increased collection efforts in western Oregon, about 34% of the submitted grouse wings came from western Oregon, yet western Oregon accounted for an estimated 49% of the statewide “blue” grouse harvest and 61% of ruffed grouse harvest (estimated from phone surveys).

Statewide education efforts should continue to increase hunter awareness and participation for the need and value of returning wings and tails. This past year an article was featured in the game bird regulations on wing collection efforts and information (including videos) was posted to the Department’s Facebook page. 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. In addition, without a harvest date written on the wing collection bag, the hatch date cannot be back calculated for immature grouse. 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.

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 their effort is greatly appreciated. Some wildlife districts have embraced this challenge and the results are self-evident as most of the wings are collected from a small number of districts.

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