U.S. Fish & Wildlife Service

Band-tailed Pigeon

Population Status, 2019

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Division of Migratory Bird Management
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BAND-TAILED PIGEON POPULATION STATUS, 2019

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Abstract: This report summarizes information on the abundance and harvest of band-tailed pigeons (*Patagioenas fasciata*) in the western United States and British Columbia from 1968 through 2019. The all-bird Breeding Bird Survey (BBS) provides an annual index to abundance of both Pacific Coast and Interior band-tailed pigeons since 1968, while the Mineral Site Survey (MSS), implemented in 2004, was developed specifically to index abundance of Pacific Coast band-tailed pigeons. Harvest and hunter participation were estimated from the Migratory Bird Harvest Information Program. The BBS indicated that the abundance of Pacific Coast band-tailed pigeons decreased (–1.5% per year, credible interval = –2.7 to –0.6) over the long term (1968–2018). Trends in abundance during the recent 10- and 5-year periods were not significant for both the BBS and MSS. For the Pacific Coast, 2018 estimates of total harvest, active hunters, and total hunter days afield were 11,600 (95% confidence interval = 5,000–18,300) pigeons, 3,200 hunters, and 8,900 (4,500–13,400) days afield, respectively. Composition of harvest was 25% hatch-year pigeons during the 2018 season. For Interior band-tailed pigeons, the BBS indicated that abundance decreased (–3.3% per year, 95% credible interval = –6.2 to –1.0) over the long term (1968–2018). Trends in abundance in the Interior population during the most recent 10- and 5-year periods were not significant. Estimates for 2018 of total harvest, active hunters, and total hunter days afield were 200 (50–350) pigeons, 300 hunters, and 800 (500–1,200) days afield, respectively. Harvest composition in 2018 was not estimated for the Interior population because no wings were received.

Band-tailed pigeons are managed cooperatively by state and provincial wildlife agencies, the U.S. Fish and Wildlife Service, and the Canadian Wildlife Service. Their management is guided by population-specific (Pacific Coast and Interior) management plans (Pacific Flyway Council 2010, Pacific and Central Flyway Councils 2018).

Maintenance of band-tailed pigeon populations in a healthy, productive state is a primary management goal. Management activities include population and harvest assessment, harvest regulation, and habitat management. Each year, counts of band-tailed pigeons heard and seen are conducted by state, provincial, federal, and other biologists in the western United States and British Columbia to monitor population status. The resulting information is used by wildlife administrators to set annual hunting regulations.

DISTRIBUTION AND ABUNDANCE

Band-tailed pigeons are divided into six subspecies, two of which occur north of Mexico, and each of those occupies a disjunct geographic distribution in western North America (Fig. 1). The Pacific Coast subspecies (*P. f. monilis*) breeds from extreme southeastern Alaska and western British Columbia south into Washington, Oregon, California, and extreme western Nevada, primarily west of the Cascade and Sierra Nevada ranges, into Baja California, and winters from central California into northern Baja California. Some individuals in Mexico and southern California, and the few wintering north of southern California, may represent non-migratory population segments. The Interior subspecies (*P. f. fasciata*) breeds from northern Colorado and east-central Utah south through Arizona, New Mexico, extreme western Texas, and into the Sierra Madre Occidental of Mexico, and winters from northern Mexico south to at least Michoacán. Some interchange occurs between the two subspecies (Schroeder and Braun 1993).

Little is known about the demographics of band-tailed pigeon populations because their habits and habitat make it impractical to locate and observe or trap an adequate sample of birds. However, in the early 1970s the total population size was approximated at 2.9–7.1 million birds in the Pacific Coast region and less than 250,000 birds in the Interior region (estimated from harvest reports and band recovery rates, Braun 1994, Seamans and Braun 2016), which suggests the sizes of and disparity between the two populations at that time.

Figure 1. Distribution of Pacific Coast (*P. f. monilis*) and Interior (*P. f. fasciata*) band-tailed pigeons in North America (after Braun et al. 1975).

ECOLOGY

Band-tailed pigeons primarily inhabit coniferous forests where they are highly mobile habitat generalists. Individuals may travel long distances (up to about 32 miles) daily to feed and drink. They exhibit high fidelity to nesting and other areas (Seamans and Braun 2016), but can be nomadic depending on food availability. Food availability appears to be a major determinant of abundance, distribution and productivity. Their diet includes buds, flowers, and fruits of deciduous trees and shrubs, especially oak, madrone, elder, dogwood, cherry, cascara, and huckleberry, but varies seasonally and with location. Early migrants are readily attracted to grain fields and fruit orchards below the forested hills where they nest, particularly before the natural foods, which are preferred, are available. Adults, especially in summer and particularly in the Pacific Coast region, frequently visit natural springs and water bodies high in sodium where they drink and peck at the soil between long periods of roosting in nearby trees.

Band-tailed pigeons nest primarily in conifers within closed-canopy conifer or mixed hardwood and conifer forest stands, but also occasionally in hardwoods and shrubs. Nest placement is highly variable ranging from 6 to 120 feet above ground, but is generally near the bole and in dense foliage. Adults are presumably monogamous, and clutches almost invariably consist of one egg. Some nesting pairs may complete up to 3 nesting cycles a year. A study in west-central Oregon documented an average of 1.7 nests initiated per pair (Leonard 1998). Sequential nest attempts have not been documented for the Interior population. Both parents incubate the egg and brood the squab. Nestlings are fed curd-like crop milk formed from the inside lining of the crop of both adults. Nesting band-tailed pigeons are sparsely distributed, but congregate to feed, drink, and consume supplemental minerals and during migration. Comprehensive material on the life history of the band-tailed pigeon may be found in Braun (1994), Jarvis and Passmore (1992), Keppie and Braun (2000), and Neff (1947).

MANAGEMENT

Band-tailed pigeons are a valued game bird offering a different type of pursuit than any other game bird. Hunting of band-tailed pigeons has been allowed in all states within the species' range except Texas. However, hunting seasons have been periodically closed due to concern about overharvest. Seasons have been closed in one or more states within each population during 55 (Interior) and 29 (Pacific Coast) of the last 106 years (1913–2018) (Appendices A and B).

Monitoring information regarding population status is presently limited to annual estimates of relative abundance and absolute harvest (harvest and age ratios in the harvest). Long-term population declines have led to especially restrictive hunting regulations since 1992 in the Pacific Coast states (9-day season with a 2-bird bag limit; California has a season in each of 2 zones; Appendix A). Uncertainty about population status and a possible population decline led to a reduction in days and bag limit in 2015 for the Interior states (14-day season with a 2-bird bag limit; Appendix B). Hunter participation and harvest are at or near all-time lows for both populations (Tables 8–13).

Currently, band-tailed pigeon abundance is thought to be limited primarily by food availability resulting from habitat alteration associated with land-management practices. Also, band-tailed pigeons are subject to Trichomoniasis, a parasitic disease caused by a single-celled protozoan, *Trichomonas gallinae*, which was introduced by exotic pigeons and doves. Virulent strains of *T. gallinae* have caused major mortality events or epizootics in band-tailed pigeons in addition to less visible, chronic losses. Periodic annual losses from *T. gallinae* in the Pacific Coast population can exceed harvest by 2 to 3 times (Stromberg et al. 2008).

The single greatest challenge in the monitoring and management of band-tailed pigeon populations is the lack of reliable information on population size (D. J. Case and Associates 2011). Existing surveys for this species provide only trends in abundance and no information about population size. Furthermore, trend estimates from existing surveys may be unreliable because sample sizes (routes or mineral sites) and pigeon counts at sample sites are low, variances are high, and coverage of habitat by survey routes or sites is poor, especially for the Interior region.

MONITORING METHODS

The Breeding Bird Survey

The North American Breeding Bird Survey (BBS) is an all-bird survey that provides an annual index of abundance for both the Interior and Pacific Coast populations of band-tailed pigeons (Sauer et al. 2007). The BBS started primarily in the eastern U.S. in 1966, expanded to the central U.S. in 1967, and the far west in 1968. The survey is based on thousands of routes distributed along secondary roads across the United States and Canada. Each route is 24.5 miles in length and consists of 50 stops or count locations at 0.5 mile intervals. At each stop, a 3-minute count is conducted whereby every bird seen within a 0.25 mile radius or heard is recorded. Surveys start one-half hour before local sunrise and take about 5 hours to complete. Data for birds heard and seen at stops are combined for BBS analyses.

Mineral Site Survey

Past monitoring efforts for the Pacific Coast population relied on the BBS, which includes all birds, and other surveys targeting band-tailed pigeon in Oregon (visual counts at mineral sites in August) and Washington (audio counts along transects in June). There was no specific monitoring program in California or British Columbia. In the interest of developing a uniform, range-wide survey of Pacific Coast band-tailed pigeons, U.S. Geological Survey scientists examined the effectiveness of existing survey methods in detecting long- and short-term changes in abundance indices (Casazza et al. 2005). Results suggested that counts of pigeons seen near mineral sites adopted from the Oregon protocol had the greatest power to detect short-term (3- to 5-year) trends in the data (Casazza et al. 2005). Additional research illustrated the impacts of rainfall on mineral site surveys (Overton et al. 2005). The result of this work was the Mineral Site Survey (MSS), developed to provide an annual index to abundance of Pacific Coast band-tailed pigeons. Additional work is needed, however, to assess the reliability of counts at mineral sites to index abundance of band-tailed pigeons.

The MSS was developed and initiated on an experimental basis in 2001 (Casazza et al. 2003), and became operational in 2004. The survey is a coordinated effort among state and provincial wildlife agencies in California, Oregon, Washington, and British Columbia, and the U.S. Fish and Wildlife Service and Canadian Wildlife Service. The MSS involves a visual count of band-tailed pigeons at select mineral sites throughout the population's range (n = 58; 22 in California, 15 in Oregon, 12 in Washington, and 9 in British Columbia) during July from one-half hour before sunrise to noon. These counts provide an index of abundance. Unfortunately, a similar survey for Interior band-tailed pigeons is not possible because the birds in this area do not use mineral sites (Sanders and Jarvis 2000, Sanders and Koch 2017).

Harvest Information Program

Wildlife professionals have long recognized that reliable harvest surveys are needed to estimate the magnitude of harvests and monitor the impact of hunting. In past years, a compilation of non-uniform, periodic state harvest surveys was used to obtain rough estimates of the number of band-tailed pigeon hunters and birds harvested.

Beginning in 1952, the U.S. Fish and Wildlife Service conducted a national harvest survey annually (Mail Questionnaire Survey), but it was based on a sampling frame that included waterfowl hunters, so harvest of non-waterfowl species could not be estimated reliably. To remedy this problem and address challenges associated with combining state surveys, the U.S. Fish and Wildlife Service and state wildlife agencies initiated the national, Migratory Bird Harvest Information Program (HIP) in 1992. This Program was designed to enable the U.S. Fish and Wildlife Service to conduct nationwide surveys that provide reliable annual estimates of the harvest of migratory game birds including band-tailed pigeons. Under HIP, states provide the U.S. Fish and Wildlife Service with the names and addresses of all licensed migratory bird hunters each year, and then surveys are conducted to estimate harvest and hunter participation (total harvest, number of active hunters, number of days hunted and seasonal harvest per hunter) in each state. All states except Hawaii have participated in HIP since 1998. Useable estimates of band-tailed pigeon harvest and hunter participation became available in 1999.

However, because the number of band-tailed pigeon hunters is quite small, obtaining adequate numbers of hunters to sample through the HIP process is difficult. Therefore, beginning in 2017, band-tailed pigeon hunters in Interior states (except Arizona) obtained a special permit, with the goal of better identifying pigeon hunters to improve harvest estimates. All hunters who obtained the special permit in Colorado, New Mexico, and Utah were contacted and asked the same questions as those contacted through the normal HIP survey. For Arizona and all Pacific Coast states, the normal HIP sampling scheme was used.

Parts Collection Survey

The Parts Collection Survey (PCS) is a secondary component of the national harvest survey and began in 1961. The PCS is the primary means by which the composition (species, age, and sex) of the annual harvest for waterfowl, doves and pigeons, rails, and American woodcock is assessed. For band-tailed pigeons, the survey selects a random sample of active band-tailed pigeon hunters registered with HIP. These persons are sent envelopes and asked to return one wing from each bird harvested. Band-tailed pigeon wings received annually are examined and categorized by age. Band-tailed pigeons were included in the PCS beginning in 1994, and all wings are examined at one wingbee site.

Estimation of Trends in Abundance

Band-tailed pigeon BBS and MSS trends were estimated using a log-linear hierarchical model and Bayesian analytical framework (Sauer et al. 2008, 2010, 2017). Within the hierarchical model, the log of the expected value of the counts is modeled as a linear combination of strata-specific intercepts and trends, a random effect for each unique combination of route and observer, a year effect, a start-up effect on the route for first-year counts by new observers, and over-dispersion. Most of the parameters of interest are treated as random effects and some parameters are hierarchical in that they are assumed to follow distributions that are governed by additional parameters. Markov-chain Monte Carlo methods are used to iteratively produce sequences of parameter estimates which can be used to describe the distribution of the parameters of interest. Once the sequences converge, medians and credible intervals (CI, Bayesian confidence intervals) for the parameters are estimated from the subsequent replicates. Annual indices of abundance are modeled as exponentiated year and trend effects, and trends are calculated as ratios of the year effects at the start and end of the interval of interest, taken to the appropriate power to estimate a yearly change (Sauer et al. 2008). Trend estimates are expressed as the average percent change per year over a given time period, while indices are expressed as the number of pigeons seen and heard per route (BBS) or seen per site (MSS).

Annual indices of abundance were calculated for each state, province, and region (groups of states and provinces). Short- (recent 5-year period), intermediate- (recent 10-year period) and long-term (all years with data) trends were evaluated for each state or province and region. The median and 95th percentile credible intervals for estimates are presented. The extent to which trend credible intervals exclude zero can be interpreted as the strength of evidence for an increasing or decreasing trend. Thus, there is evidence of a positive trend if the lower CI > 0 and there is evidence of negative trend if the upper CI < 0. If the CI contains 0 then there is no evidence for a trend in abundance. Reported sample sizes are the

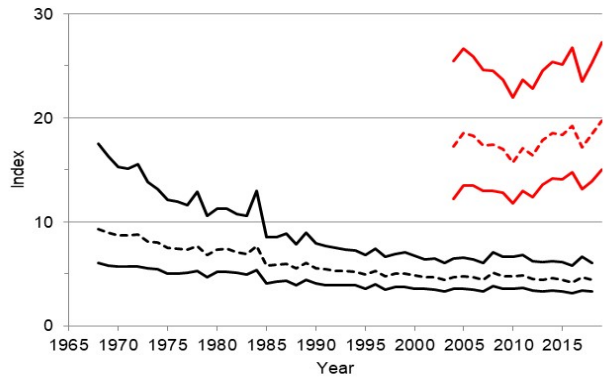

Figure 2. Abundance indices (dashed lines) and 95% credible intervals (solid lines) for the Pacific Coast population of band-tailed pigeons based on results from the North American Breeding Bird Survey (1968–2018, black lines) and Mineral Site Survey (2004–2019, red lines; scaled by dividing the index by 10).

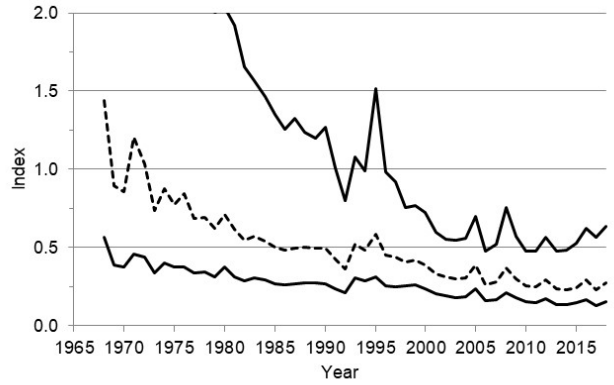

Figure 3. Abundance indices (dashed lines) and 95% credible intervals (solid lines) for the Interior population of band-tailed pigeons based on results from the North American Breeding Bird Survey, 1968–2018.

number of routes or sites on which trend estimates are based, which includes any route or site on which band-tailed pigeons were ever encountered. For the MSS, only data starting in 2004 when the survey became operational were used. Sites were limited to those with a naturally occurring known mineral source that had at least 2 annual surveys and would likely be accessible for counting in the future.

MONITORING RESULTS

The Breeding Bird Survey

Results from the BBS are presented in Figures 2–3 and Tables 1–3. The trend in the median annual count of Pacific Coast band-tailed pigeons seen and heard per route since 1968 decreased 1.5% per year (CI = –2.7 to –0.6). Trends for Pacific Coast pigeons during the recent 10- and 5-year periods were not significant.

For the Interior band-tailed pigeons, the trend in the median annual count since 1968 decreased 3.3% per year (CI = –6.2 to –1.0). Trends for Interior pigeons during the most recent 10- and 5-year periods were not significant. Caution should be used in interpreting results, particularly for the Interior region, because sample sizes (routes) and pigeon counts per route are low, variances are high, and coverage of habitat by BBS routes is poor.

Mineral Site Survey

Results from the MSS suggested no trend in the median annual count of Pacific Coast band-tailed pigeons seen at mineral sites since 2004, and no trend in the last 5 years (Fig. 2, Tables 4–6). Annual indices of Pacific Coast band-tailed pigeon abundance by state and province are provided in Table 7. The MSS and BBS gave similar results for Pacific Coast pigeons over the recent 5 and 10 years in that the estimated trends in annual pigeon counts were not significant (Fig. 2, Tables 2, 3, 5, and 6).

Harvest Information Program

Estimates from HIP are presented in Tables 8–10 for Pacific Coast band-tailed pigeons and Tables 11–13 for Interior band-tailed pigeons. Preliminary estimates from 2018 indicated total harvest, active hunters, and total hunter days afield for Pacific Coast band-tailed pigeons were 11,600 (95% confidence interval = 5,000–18,300) pigeons, 3,200 hunters, and 8,900 (4,500–13,400) days afield, respectively.

For the Interior band-tailed pigeon, the number of hunters who obtained a special permit was 455, 1,016, and 222 in Colorado, New Mexico, and Utah, respectively. Colorado submitted their list of permitted hunters late and it could not be used for the HIP survey. All hunters who obtained a permit in New Mexico and Utah were surveyed. The permit was free except in Colorado, where the cost was $5.

For Interior band-tailed pigeons during 2018, total harvest, active hunters, and total hunter days afield were 200 (50–350) pigeons, 300 hunters, and 800 (500–1,200) days afield, respectively.

Parts Collection Survey

Results of the PCS are presented in Tables 14 and 15. Composition of the Pacific Coast band-tailed pigeon harvest during 2018 was 25% hatch-year birds based on a total sample of 115 pigeons. Composition of the Interior band-tailed pigeon harvest during 2018 could not be estimated because no wings were received. Caution should be used in interpreting all estimates because of small sample sizes. Further, these estimates are an index to recruitment and not adjusted for differential vulnerability to harvest between age classes. Consequently, the annual composition of the harvest may not be representative of the population.

Data are not adequate to evaluate differential vulnerability rates between juvenile and adult birds (juvenile:adult). There is, however, some band-recovery data for male and females combined during 1968–1976 for the Interior population and during 1962–1977 for the Pacific Coast population. Based on a comparison of harvest rates, estimates of juveniles per adult pigeon in the harvest are variable among years and range from 0.20 ± 0.20 to 5.62 ± 5.92 (mean of 1.90 ± 0.60) for the Interior population and 0.55 ± 0.24 to 1.54 ± 0.81 (mean of 1.05 ± 0.10) for the Pacific Coast population (T. A. Sanders, U.S. Fish and Wildlife Service, unpublished data). These results suggest that, on average, juvenile and adult birds have nearly equal probability of harvest in the Pacific Coast population. Equal vulnerability of age classes seems plausible since most pigeons are harvested at areas where they congregate (e.g., mineral sites, feeding sites, and mountain passes) without the use of decoys. In the Interior population, juvenile birds appear twice as likely to be harvested compared to adults, but precision of the estimate is poor. It is unknown whether these mean age-related vulnerability estimates apply to more recent years.

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Table 1. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Breeding Bird Survey** data for regions, states and provinces during the **51-year** (1968–2018) duration of the survey.

Region		Credible interval		
State/Province	Trend	Lower	Upper	N[b]
Pacific Coast	-1.5	-2.7	-0.6	281
British Columbia	-3.7	-5.7	-2.1	49
California	0.6	-0.5	1.6	142
Oregon	0.1	-1.3	1.6	46
Washington	0.5	-1.2	2.3	44
Interior	-3.3	-6.2	-1.0	74
Arizona	-2.7	-5.5	0.1	19
Colorado	-2.4	-7.3	2.0	31
New Mexico	-3.6	-7.5	-0.3	16
Utah	-0.5	-5.8	5.8	8

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.
[b] "N" is the number of routes on which the species was encountered during the entire survey period.

Table 2. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Breeding Bird Survey** data for regions, states and provinces during the recent **10-year** (2009–2018) period.

Region		Credible interval		
State/Province	Trend	Lower	Upper	N[b]
Pacific Coast	-1.5	-3.9	0.5	202
British Columbia	-4.0	-8.7	-0.4	33
California	0.0	-3.1	2.5	100
Oregon	0.0	-3.6	3.0	36
Washington	-1.3	-7.9	3.9	33
Interior	-2.8	-9.3	3.5	36
Arizona	-2.8	-9.6	4.6	9
Colorado	-1.6	-15.0	13.6	15
New Mexico	-4.0	-13.4	4.6	10
Utah	3.2	-10.2	49.9	2

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.
[b] "N" is the number of routes on which the species was encountered during the 10-year interval.

Table 3. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Breeding Bird Survey** data for regions, states and provinces during the recent **5-year** (2014–2018) period.

Region		Credible interval		
State/Province	Trend	Lower	Upper	N[b]
Pacific Coast	-0.3	-4.2	4.0	169
British Columbia	-3.5	-10.8	5.8	28
California	0.2	-5.1	5.6	83
Oregon	0.5	-4.8	8.4	27
Washington	1.3	-9.2	14.0	31
Interior	3.0	-6.8	16.5	23
Arizona	-3.0	-17.0	11.8	8
Colorado	28.5	-9.1	100.4	7
New Mexico	2.4	-9.6	23.3	6
Utah	2.6	-24.3	75.4	2

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.
[b] "N" is the number of routes on which the species was encountered during the 5-year interval.

Table 4. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Mineral Site Survey** data for regions, states and provinces during the **16-year** (2004–2019) duration of the survey.

Region		Credible interval		
State/Province	Trend	Lower	Upper	Sites
Pacific Coast	0.9	–1.2	3.0	58
British Columbia	–2.1	–6.5	3.5	9
California	2.8	0.1	5.4	22
Oregon	1.6	–0.7	3.9	15
Washington	1.8	–0.9	4.9	12

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.

Table 5. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Mineral Site Survey** data for regions, states and provinces during the recent **10-year** (2010–2019) period.

Region		Credible interval		
State/Province	Trend	Lower	Upper	Sites
Pacific Coast	1.4	–0.7	3.8	58
British Columbia	–1.6	–6.4	5.6	9
California	2.8	–0.5	6.2	22
Oregon	1.4	–1.2	4.1	15
Washington	2.8	–0.7	7.2	12

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.

Table 6. Estimated trend[a] (percent change per year and lower and upper 95% credible intervals) in band-tailed pigeon abundance based on **Mineral Site Survey** data for regions, states and provinces during the recent **5-year** (2015–2019) period.

Region		Credible interval		
State/Province	Trend	Lower	Upper	Sites
Pacific Coast	1.2	–2.5	5.5	58
British Columbia	0.4	–6.4	15.4	9
California	0.5	–8.3	5.1	22
Oregon	–1.5	–7.9	3.2	15
Washington	4.7	–1.6	13.5	12

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.

Table 7. Estimated annual abundance **indices**[a] and 95% credible intervals for Pacific Coast band-tailed pigeons based on **Mineral Site Survey** data for the region, states and provinces, 2004–2019.

Region State/Province	Year	Index	Credible intervals Lower	Upper
Pacific Coast	2004	172.3	122.0	255.0
	2005	185.1	134.9	266.7
	2006	182.4	134.9	258.7
	2007	173.8	130.1	246.2
	2008	174.0	130.1	244.9
	2009	170.4	127.9	236.7
	2010	157.4	117.5	219.5
	2011	171.0	129.5	236.9
	2012	163.9	123.8	228.0
	2013	178.4	136.1	245.2
	2014	185.8	141.5	253.9
	2015	183.8	141.2	251.0
	2016	192.6	147.5	267.7
	2017	172.0	131.5	235.4
	2018	184.2	139.5	252.7
	2019	197.6	150.1	272.4
British Columbia	2004	209.5	96.8	436.4
	2005	220.9	112.1	428.5
	2006	203.4	106.8	373.2
	2007	200.5	106.5	368.5
	2008	177.9	93.6	319.3
	2009	177.7	94.6	320.5
	2010	168.5	91.7	294.7
	2011	171.1	94.7	300.7
	2012	166.1	89.0	296.9
	2013	156.5	89.1	267.7
	2014	144.8	80.0	246.2
	2015	147.2	84.7	249.6
	2016	139.9	78.9	238.3
	2017	136.2	81.6	228.1
	2018	147.9	89.0	251.5
	2019	153.1	90.3	273.9
California	2004	86.2	51.3	149.5
	2005	90.5	54.8	154.5
	2006	96.4	58.7	165.5
	2007	99.4	61.1	169.5
	2008	102.5	62.7	175.3
	2009	98.8	59.9	166.7
	2010	103.1	63.3	175.0
	2011	116.8	71.7	203.6
	2012	113.6	70.5	192.6
	2013	117.7	73.2	200.1
	2014	130.3	79.9	228.7
	2015	125.1	77.9	213.7
	2016	131.9	81.7	227.5
	2017	129.8	79.6	222.0
	2018	129.2	78.4	218.9
	2019	130.0	78.3	221.7

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.

Table 7. Continued.

Region State/Province	Year	Index	Credible intervals Lower	Upper
Oregon	2004	177.3	110.4	281.9
	2005	191.3	123.3	301.1
	2006	191.0	124.2	301.2
	2007	192.1	125.0	299.7
	2008	181.2	119.1	280.6
	2009	194.6	128.7	299.4
	2010	181.3	118.8	277.7
	2011	179.7	117.0	276.2
	2012	194.2	128.0	298.2
	2013	225.7	148.8	350.6
	2014	245.1	159.0	386.7
	2015	225.4	151.2	348.6
	2016	232.7	155.3	364.6
	2017	208.6	136.5	322.6
	2018	216.7	142.2	334.8
	2019	223.5	148.6	351.3
Washington	2004	202.5	125.5	340.6
	2005	223.5	143.5	374.4
	2006	225.4	144.4	376.4
	2007	191.8	122.5	320.9
	2008	223.3	142.5	369.8
	2009	199.9	127.8	328.6
	2010	167.3	102.5	282.7
	2011	205.0	131.1	336.2
	2012	171.2	106.3	287.7
	2013	202.9	129.0	331.3
	2014	208.6	133.0	342.2
	2015	225.1	146.8	362.6
	2016	253.9	159.5	415.5
	2017	201.6	127.5	333.7
	2018	229.1	146.3	379.6
	2019	267.3	168.1	442.6

[a] Annual indices are estimated from exponentiated year effects derived from a log-linear hierarchical model fit using Bayesian methods.

Table 8. Total **harvest** estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Pacific Coast** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	California		Oregon		Washington		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	19,300	101	3,800	42	†	†	23,100	85
2000	12,200	65	4,100	92	†	†	16,300	54
2001	8,300	49	5,000	45	†	†	13,200	35
2002	4,200	39	4,000	36	†	†	8,200	27
2003	8,000	50	4,900	33	1,500	78	14,400	31
2004	14,300	45	3,300	44	300	160	17,900	37
2005	11,100	58	1,400	34	1,000	84	13,500	48
2006	12,500	40	1,500	25	900	97	14,900	34
2007	9,700	39	1,400	74	1,700	61	12,700	32
2008	27,500	35	500	18	2,100	87	30,200	32
2009	19,300	29	1,900	25	1,400	132	22,600	27
2010	16,500	50	1,100	41	700	138	18,400	45
2011	10,800	39	900	32	200	63	11,900	35
2012	9,100	44	1,500	29	200	76	10,900	37
2013	4,700	50	1,600	40	500	166	6,700	38
2014	10,700	75	1,200	34	200	52	12,000	66
2015	6,600	74	600	49	100	74	7,300	67
2016	4,400	65	1,300	37	200	61	5,900	49
2017	5,600	80	500	54	0	0	6,000	74
2018	9,000	70	1,200	44	1,500	150	11,600	57

† No estimate available (the season in Washington was closed from 1991 through 2001).

Table 9. Active **hunter** estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Pacific Coast** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	California		Oregon		Washington		Total[a]	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	3,900	48	1,500	47	†	†	5,400	‡
2000	5,600	37	1,700	46	†	†	7,300	‡
2001	2,600	34	1,700	31	†	†	4,200	‡
2002	2,500	30	1,300	25	†	†	3,800	‡
2003	4,600	38	1,800	24	1,000	23	7,400	‡
2004	4,700	37	1,500	36	500	64	6,700	‡
2005	3,900	39	500	14	700	58	5,100	‡
2006	6,000	35	400	13	500	61	6,900	‡
2007	4,900	33	700	113	900	44	6,400	‡
2008	10,500	24	200	8	600	61	11,300	‡
2009	8,200	25	600	12	1,000	68	9,700	‡
2010	5,500	36	500	17	500	79	6,400	‡
2011	4,500	33	300	15	100	31	4,900	‡
2012	3,300	38	500	15	100	28	3,900	‡
2013	2,700	46	400	19	100	0	3,300	‡
2014	2,400	50	400	14	100	31	2,900	‡
2015	2,200	53	200	24	<100	39	2,500	‡
2016	2,900	53	300	21	<100	39	3,300	‡
2017	2,500	48	100	27	100	195	2,800	‡
2018	2,400	65	300	37	500	190	3,200	‡

[a] Estimates may be biased high because the HIP sample frames are state-specific; therefore, hunters are counted multiple times if they hunt in more than one state.

† No estimate available (the season in Washington was closed from 1991 through 2001).

‡ Not estimable.

Table 10. Total hunter **days** afield estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Pacific Coast** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	California		Oregon		Washington		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	9,100	54	3,500	33	†	†	12,600	40
2000	10,000	41	3,800	61	†	†	13,800	34
2001	7,500	39	4,700	39	†	†	12,200	28
2002	4,600	35	3,400	28	†	†	7,900	23
2003	11,500	52	5,100	29	1,600	58	18,300	34
2004	9,700	36	3,400	35	800	83	13,900	27
2005	8,800	47	1,300	21	1,000	62	11,000	38
2006	13,500	47	1,200	20	700	68	15,400	41
2007	10,600	37	1,200	69	1,800	60	13,500	30
2008	29,300	34	500	13	1,500	70	31,300	32
2009	20,100	29	1,800	19	2,500	85	24,400	25
2010	11,100	39	1,100	26	1,500	96	13,700	33
2011	11,800	40	800	22	200	49	12,800	37
2012	8,200	50	1,200	22	400	71	9,800	42
2013	4,600	42	1,200	29	400	107	6,200	33
2014	7,500	61	1,100	22	200	41	8,800	52
2015	5,400	60	600	46	200	48	6,200	52
2016	5,200	57	1,000	32	100	51	6,300	47
2017	5,600	54	400	36	100	195	6,100	50
2018	6,400	66	1,000	34	1,500	95	8,900	50

† No estimate available (the season in Washington was closed from 1991 through 2001).

Table 11. Total **harvest** estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Interior** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	Arizona		Colorado		New Mexico		Utah		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	500	154	700	129	†	†	100	69	1,300	94
2000	2,300	110	1,700	147	400	122	300	192	4,600	78
2001	400	118	600	94	600	126	300	169	2,000	62
2002	1,000	153	100	117	600	158	400	149	2,100	89
2003	1,400	126	900	97	400	65	100	132	2,900	70
2004	1,400	120	500	57	700	115	200	136	2,800	68
2005	2,200	105	100	113	300	106	100	193	2,700	86
2006	500	56	600	76	100	109	400	95	1,600	42
2007	1,000	101	900	102	2,800	113	200	195	4,800	71
2008	1,600	122	2,500	83	600	95	†	†	4,700	62
2009	2,300	76	1,400	100	1,300	79	†	†	5,000	49
2010	700	110	1,500	90	2,700	100	200	195	5,000	62
2011	1,000	93	300	101	500	125	100	142	1,800	61
2012	1,300	75	1,100	61	300	38	100	143	2,800	43
2013	900	125	<50	140	200	30	500	196	1,600	92
2014	700	83	400	96	200	67	100	172	1,500	52
2015	500	57	200	98	100	87	<100	190	800	43
2016	500	69	200	174	200	81	200	191	800	54
2017	100	72	100	64	200	68	0	0	300	46
2018	100	110	†	†	<100	94	<50	156	200	77

† No estimate available.

Table 12. Active **hunter** estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Interior** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	Arizona		Colorado		New Mexico		Utah		Total[a]	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	700	105	100	113	100	121	<100	46	900	†
2000	600	79	400	95	300	67	<100	192	1,300	†
2001	500	65	500	61	500	53	200	97	1,800	†
2002	400	85	200	101	300	81	200	98	1,000	†
2003	1,500	61	400	71	400	67	300	81	2,600	†
2004	900	56	300	29	100	103	<100	92	1,300	†
2005	800	69	200	46	100	109	100	134	1,200	†
2006	600	73	900	52	100	172	200	92	1,800	†
2007	2,100	43	1,400	45	800	47	300	86	4,600	†
2008	1,300	55	2,300	40	600	52	300	143	4,500	†
2009	1,300	52	2,400	51	500	54	200	138	4,400	†
2010	1,800	47	1,100	61	900	46	300	112	4,100	†
2011	500	101	200	38	300	37	200	82	1,200	†
2012	1,100	57	300	39	100	18	100	93	1,600	†
2013	400	137	200	39	100	16	300	196	1,000	†
2014	1,000	43	300	35	100	32	100	75	1,500	†
2015	600	24	200	44	100	39	100	93	1,000	†
2016	100	56	100	108	100	69	<100	191	300	†
2017	100	47	<100	29	100	24	<100	66	200	†
2018	100	49	†	†	100	36	<50	57	300	†

[a] Estimates may be biased high because the HIP sample frames are state-specific; therefore, hunters are counted multiple times if they hunt in more than one state.

† Not estimable.

Table 13. Total hunter **days** afield estimates and 95% confidence intervals (CI, expressed as the interval half width in percent) for **Interior** band-tailed pigeons based on Harvest Information Program data, 1999–2018.

	Arizona		Colorado		New Mexico		Utah		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	2,000	97	300	122	300	158	100	50	2,700	76
2000	1,600	83	2,800	107	900	75	300	192	5,600	60
2001	1,000	71	800	54	1,800	64	700	133	4,300	39
2002	1,000	110	400	105	900	109	500	104	2,800	58
2003	3,700	77	2,100	89	1,400	75	600	136	7,900	47
2004	2,300	80	700	35	300	92	100	72	3,400	55
2005	1,600	74	300	51	400	140	200	142	2,500	54
2006	1,100	70	1,700	63	300	163	200	87	3,300	43
2007	5,000	57	3,800	56	3,600	62	400	73	12,800	33
2008	3,300	66	6,100	45	2,100	76	700	139	12,200	33
2009	4,100	68	6,100	70	2,300	72	600	166	13,200	42
2010	5,800	57	3,900	77	3,200	55	700	121	13,600	36
2011	900	71	700	55	900	62	300	94	2,800	35
2012	4,800	79	1,300	66	500	27	200	99	6,800	57
2013	800	126	500	48	400	26	300	196	2,000	60
2014	1,900	49	800	45	300	36	400	104	3,300	32
2015	1,700	31	600	57	500	51	100	110	3,000	23
2016	400	71	100	140	100	81	100	191	800	54
2017	100	52	100	33	300	41	<100	78	500	28
2018	600	60	†	†	200	44	<100	82	800	42

† No estimate available

Table 14. Estimated **age** structure of **Pacific Coast** band-tailed pigeon harvest during September through December based on Parts Collection Survey data, 1994 to 2018. Values are percentage of hatch year birds (%), number of hatch year birds (HY), and number of both hatch year and after hatch year birds examined (N).

	California			Oregon			Washington			Total		
Year	%	HY	N	%	HY	N	%	HY	N	%	HY	N
1994	43.0	220	512	23.2	134	578	†	0	0	32.5	354	1,090
1995	29.6	74	250	20.4	112	549	†	0	0	23.3	186	799
1996	26.9	66	245	15.0	38	253	†	0	0	20.9	104	498
1997	31.1	65	209	17.7	64	361	†	0	0	22.6	129	570
1998	30.8	85	276	18.1	48	265	†	0	0	24.6	133	541
1999	33.2	119	358	20.1	79	394	†	0	0	26.3	198	752
2000	32.1	69	215	17.5	58	332	†	0	0	23.2	127	547
2001	23.6	34	144	19.2	52	271	†	0	0	20.7	86	415
2002	32.1	53	165	14.0	33	236	13.9	25	180	19.1	111	581
2003	34.4	72	209	21.2	49	231	15.2	17	112	25.0	138	552
2004	25.2	33	131	20.0	39	195	33.3	9	27	22.9	81	353
2005	19.3	26	135	13.3	24	180	†	0	0	15.9	50	315
2006	18.1	47	259	18.8	48	255	13.3	6	45	18.1	101	559
2007	24.8	34	137	18.3	46	251	10.9	6	55	19.4	86	443
2008	29.8	39	131	20.0	22	110	31.0	9	29	25.9	70	270
2009	30.1	31	103	17.8	35	197	15.2	5	33	21.3	71	333
2010	31.4	38	121	17.1	30	175	12.5	5	40	21.7	73	336
2011	22.0	20	91	13.5	25	185	8.1	3	37	15.3	48	313
2012	9.1	2	22	16.2	11	68	8.3	2	24	13.2	15	114
2013	31.3	5	16	40.0	2	5	33.3	4	12	33.3	11	33
2014	28.3	15	53	25.0	2	8	13.3	2	15	25.0	19	76
2015	12.5	4	32	44.4	16	36	40.0	6	15	31.3	26	83
2016	21.6	11	51	40.8	20	49	14.3	4	28	27.3	35	128
2017	12.3	10	81	44.4	12	27	28.0	7	25	21.8	29	133
2018	15.5	9	58	43.8	14	32	24.0	6	25	25.2	29	115

† No estimate available (the season in Washington was closed from 1991 through 2001).

Table 15. Estimated **age** structure of **Interior** band-tailed pigeon harvest during September throuh October based on Parts Collection Survey data, 1994 to 2018. Values are percentage of hatch year birds (%), number of hatch year birds (HY), and number of both hatch year and after hatch year birds examined (N).

	Arizona			Colorado			New Mexico			Utah			Total		
Year	%	HY	N	%	HY	N	%	HY	N	%	HY	N	%	HY	N
1994	24.2	16	66	66.7	4	6	28.6	14	49	†	0	0	28.1	34	121
1995	60.0	6	10	29.3	53	181	19.0	12	63	54.5	6	11	29.1	77	265
1996	0.0	0	1	38.5	5	13	34.1	15	44	†	0	0	34.5	20	58
1997	33.3	7	21	31.5	17	54	15.5	13	84	†	0	0	23.3	37	159
1998	48.4	15	31	20.0	2	10	10.0	2	20	16.7	1	6	29.9	20	67
1999	13.0	3	23	33.3	6	18	24.1	7	29	†	0	0	22.9	16	70
2000	41.7	30	72	11.8	2	17	26.9	18	67	0.0	0	3	31.4	50	159
2001	52.9	9	17	†	0	0	23.5	4	17	33.3	1	3	37.8	14	37
2002	55.9	57	102	27.3	3	11	54.0	34	63	8.3	1	12	50.5	95	188
2003	†	0	0	†	0	0	33.3	1	3	†	0	0	33.3	1	3
2004	34.8	8	23	†	0	0	40.0	4	10	†	0	0	36.4	12	33
2005	15.4	2	13	66.7	8	12	0.0	0	3	†	0	0	35.7	10	28
2006	13.5	7	52	20.0	4	20	29.9	20	67	†	0	0	22.3	31	139
2007	25.0	11	44	†	0	0	†	0	0	†	0	0	25.0	11	44
2008	18.2	2	11	†	0	0	†	0	0	†	0	0	18.2	2	11
2009	0.0	0	5	†	0	0	14.3	1	7	†	0	0	8.3	1	12
2010	18.2	2	11	†	0	0	14.3	2	14	†	0	0	16.0	4	25
2011	13.3	2	15	†	0	0	0.0	0	1	†	0	0	12.5	2	16
2012	24.2	16	66	†	0	0	0.0	0	3	†	0	0	23.2	16	69
2013	†	0	0	†	0	0	†	0	0	†	0	0	†	0	0
2014	†	0	0	†	0	0	28.0	7	25	†	0	0	28.0	7	25
2015	†	0	0	†	0	0	33.3	2	6	†	0	0	33.3	2	6
2016	†	0	0	†	0	0	†	0	0	†	0	0	†	0	0
2017	†	0	0	†	0	0	†	0	0	†	0	0	†	0	0
2018	†	0	0	†	0	0	†	0	0	†	0	0	†	0	0

† No estimate available.

Appendix A. Hunting **season** dates, days, and daily bag limits (possession limits are two times the daily bag limit prior to 2013 and three times the daily bag limit beginning in 2013 unless otherwise noted) for **Pacific Coast** band-tailed pigeon seasons, 1913–2018.

	California[a]										
	North		South			Oregon			Washington		
Year	Dates	Days	Dates	Days	Bag	Dates	Days	Bag	Dates	Days	Bag
1913–31	Closed		Closed			Closed			Closed		
1932	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Oct 16–30	15	10
1933	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Oct 16–30	15	10
1934	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Oct 16–30	15	10
1935	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Sep 16–30	15	10
1936	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Sep 16–30	15	10
1937	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Sep 16–30	15	10
1938	Dec 1–15	15	Dec 1–15	15	10	Oct 16–30	15	10	Sep 16–30	15	10
1939	Dec 1–15	15	Dec 1–15	15	10	Sep 1–15	15	10	Sep 16–30	15	10
1940	Dec 1–15	15	Dec 1–15	15	10	Sep 1–15	15	10	Sep 16–30	15	10
1941	Dec 1–15	15	Dec 1–15	15	10	Sep 1–15	15	10	Sep 16–30	15	10
1942	Dec 1–30	30	Dec 1–30	30	10	Sep 1–30	30	10	Sep 16–Oct 15	30	10
1943	Dec 1–30	30	Dec 1–30	30	10	Sep 1–30	30	10	Sep 16–Oct 15	30	10
1944	Dec 1–30	30	Dec 1–30	30	10	Sep 1–30	30	10	Sep 16–Oct 15	30	10
1945	Dec 1–30	30	Dec 1–30	30	10	Sep 1–30	30	10	Sep 16–Oct 15	30	10
1946	Sep 1–30	30	Sep 1–30	30	10	Sep 1–30	30	10	Sep 1–30	30	10
1947	Dec 1–30	30	Dec 1–30	30	10	Sep 1–30	30	10	Sep 1–30	30	10
1948	Sep 1–15	15	Dec 1–15	15	10	Sep 1–30	30	10	Sep 1–30	30	10
1949	Sep 16–30, Dec 17–31	30	Sep 16–30, Dec 17–31	30	10	Sep 1–30	30	10	Sep 1–30	30	10
1950	Sep 16–30, Dec 17–31	30	Sep 16–30, Dec 17–31	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1951	Sep 16–30, Dec 17–31	30	Sep 16–30, Dec 17–31	30	6	Sep 1–30	30	6	Sep 1–30	30	6
1952	Sep 16–30, Dec 17–31	30	Sep 16–30, Dec 17–31	30	6	Sep 1–30	30	6	Sep 1–30	30	6
1953	Oct 16–31	16	Dec 1–31	31	6	Sep 1–30	30	6	Sep 1–30	30	6
1954	Oct 1–31	31	Dec 1–31	31	6	Sep 1–30	30	6	Sep 1–30	30	6
1955	Oct 1–31	31	Dec 1–31	31	6	Sep 1–30	30	6	Sep 1–30	30	6
1956	Oct 1–31	31	Dec 1–31	31	6	Sep 1–30	30	6	Sep 1–30	30	6
1957	Oct 1–31	31	Dec 1–31	31	6	Sep 1–30	30	6	Sep 1–30	30	6
1958	Oct 1–31	31	Dec 11–Jan 10	31	6	Sep 1–28	28	6	Sep 1–30	30	6
1959	Oct 1–31	31	Dec 11–Jan 10	31	6	Sep 1–27	27	6	Sep 1–30	30	6
1960	Oct 1–31	31	Dec 17–Jan 15	30	6	Sep 1–30	30	6	Sep 1–30	30	6
1961	Sep 30–Oct 29	30	Dec 16–Jan 14	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1962	Sep 29–Oct 28	30	Dec 15–Jan 13	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1963	Sep 28–Oct 27	30	Dec 14–Jan 12	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1964	Sep 26–Oct 25	30	Dec 12–Jan 10	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1965	Sep 25–Oct 24	30	Dec 11–Jan 9	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1966	Oct 1–30	30	Dec 17–Jan 15	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1967	Sep 29–Oct 29	31	Dec 16–Jan 14	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1968	Sep 28–Oct 27	30	Dec 14–Jan 12	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1969	Sep 27–Oct 26	30	Dec 13–Jan 11	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1970	Oct 3–Nov 1	30	Dec 12–Jan 10	30	8	Sep 1–30	30	8	Sep 1–30	30	8

Appendix A. Continued.

	California[a]										
	North		South			Oregon			Washington		
Year	Dates	Days	Dates	Days	Bag	Dates	Days	Bag	Dates	Days	Bag
1971	Oct 2–31	30	Dec 11–Jan 9	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1972	Sep 30–Oct 29	30	Dec 16–Jan 14	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1973	Sep 29–Oct 28	30	Dec 15–Jan 15	32	8	Sep 1–30	30	8	Sep 1–30	30	8
1974	Sep 28–Oct 27	30	Dec 14–Jan 12	30	8	Sep 1–30	30	8	Sep 1–30	30	8
1975	Oct 4–19	16	Dec 13–28	16	6	Sep 1–30	30	5	Sep 1–30	30	5
1976	Oct 2–17	16	Dec 11–26	16	6	Sep 1–30	30	5	Sep 1–30	30	5
1977	Oct 1–16	16	Dec 10–26	17	6	Sep 1–30	30	5	Sep 1–30	30	5
1978	Sep 30–Oct 29	30	Dec 16–Jan 14	30	6	Sep 1–30	30	5	Sep 1–30	30	5
1979	Sep 29–Oct 28	30	Dec 15–Jan 13	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1980	Sep 27–Oct 26	30	Dec 13–Jan 11	30	5	Sep 13–Oct 12	30	5	Sep 1–30	30	5
1981	Sep 26–Oct 25	30	Dec 12–Jan 10	30	5	Sep 12–Oct 11	30	5	Sep 1–30	30	5
1982	Sep 25–Oct 24	30	Dec 11–Jan 09	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1983	Sep 24–Oct 23	30	Dec 10–Jan 08	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1984	Sep 24–Oct 23	30	Dec 10–Jan 08	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1985	Sep 28–Oct 27	30	Dec 14–Jan 12	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1986	Sep 27–Oct 26	30	Dec 13–Jan 11	30	5	Sep 1–30	30	5	Sep 1–30	30	5
1987	Sep 26–Oct 11	16	Dec 12–27	16	4	Sep 7–22	16	4	Sep 7–22	16	4
1988	Sep 24–Oct 9	16	Dec 10–25	16	4	Sep 15–30	16	4	Sep 17–25	9	4
1989	Sep 30–Oct 15	16	Dec 9–24	16	4	Sep 15–22	8	2	Sep 16–24	9	4
1990	Sep 15–30	16	Dec 8–23	16	2	Sep 15–23	9	2	Sep 15–23	9	2
1991	Sep 21–Oct 6	16	Dec 14–29	16	2	Sep 15–23	9	2	Closed		
1992	Sep 19–27	9	Dec 19–27	9	2	Sep 15–23	9	2	Closed		
1993	Sep 18–26	9	Dec 18–26	9	2	Sep 15–23	9	2	Closed		
1994	Sep 17–25	9	Dec 17–25	9	2	Sep 15–23	9	2	Closed		
1995	Sep 16–24	9	Dec 16–24	9	2	Sep 15–23	9	2	Closed		
1996	Sep 21–29	9	Dec 21–29	9	2	Sep 15–23	9	2	Closed		
1997	Sep 20–28	9	Dec 20–28	9	2	Sep 15–23	9	2	Closed		
1998	Sep 19–27	9	Dec 19–27	9	2	Sep 15–23	9	2	Closed		
1999	Sep 18–26	9	Dec 18–26	9	2	Sep 15–23	9	2	Closed		
2000	Sep 16–24	9	Dec 16–24	9	2	Sep 15–23	9	2	Closed		
2001	Sep 15–23	9	Dec 15–23	9	2	Sep 15–23	9	2	Closed		
2002	Sep 21–29	9	Dec 21–29	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2003	Sep 20–28	9	Dec 20–28	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2004	Sep 16–24	9	Dec 16–24	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2005	Sep 17–25	9	Dec 17–25	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2006	Sep 16–24	9	Dec 16–24	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2007	Sep 15–23	9	Dec 15–23	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2008	Sep 20–28	9	Dec 20–28	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2009	Sep 19–27	9	Dec 19–27	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2010	Sep 18–26	9	Dec 18–26	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2011	Sep 17–25	9	Dec 17–25	9	2	Sep 15–23	9	2	Sep 15–23	9	2

Appendix A. Continued.

	California[a]										
	North		South			Oregon			Washington		
Year	Dates	Days	Dates	Days	Bag	Dates	Days	Bag	Dates	Days	Bag
2012	Sep 15–23	9	Dec 15–23	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2013	Sep 14–22	9	Dec 14–22	9	2	Sep 15–23	9	2	Sep 15–23	9	2[b]
2014	Sep 20–28	9	Dec 20–28	9	2	Sep 15–23	9	2	Sep 15–23	9	2
2015–18	Sep 15–Oct 3	9	Sep 15–Jan 1	9	2	Sep 15–Jan 1	9	2	Sep 15–Jan 1	9	2[c]

[a] The northern zone includes the counties of Alpine, Butte, Del Norte, Glenn, Humboldt, Lassen, Mendocino, Modoc, Plumas, Shasta, Sierra, Siskiyou, Tehama, and Trinity. The Southern Zone includes the balance of the state not included in the northern zone.

[b] The possession limit is 2 times the daily bag limit.

[c] The possession limit is 3 times the daily bag limit

Appendix B. Hunting **season** dates, days, and daily bag limits (possession limits are two times the daily bag limit prior to 2013 and three times the daily bag limit beginning in 2013 unless otherwise noted) for **Interior** band-tailed pigeon seasons, 1913–2018.

	Arizona[a]			Colorado			New Mexico[b] North		New Mexico[b] South			Utah		
Year	Dates	Days	Bag	Dates	Days	Bag	Dates	Days	Dates	Days	Bag	Dates	Days	Bag
1913–31	Closed			Closed			Closed					Closed		
1932	Dec 1–15	15	10	Closed			Nov 1–15	15	Nov 1–15		10	Closed		
1933	Dec 1–15	15	10	Closed			Nov 1–15	15	Nov 1–15		10	Closed		
1934	Dec 1–15	15	10	Closed			Nov 1–15	15	Nov 1–15		10	Closed		
1935	Dec 1–15	15	10	Closed			Nov 1–15	15	Nov 1–15		10	Closed		
1936	Oct 16–30	15	10	Closed			Oct 1–15	15	Oct 1–15		10	Closed		
1937	Oct 16–30	15	10	Closed			Oct 1–15	15	Oct 1–15		10	Closed		
1938	Oct 16–30	15	10	Closed			Oct 1–15	15	Oct 1–15		10	Closed		
1939	Oct 16–30	15	10	Closed			Oct 1–15	15	Oct 1–15		10	Closed		
1940	Sep 16–30	15	10	Closed			Sep 16–30	15	Sep 16–30		10	Closed		
1941	Sep 16–30	15	10	Closed			Sep 16–30	15	Sep 16–30		10	Closed		
1942	Sep 16–30	15	10	Closed			Sep 16–30	15	Sep 16–30		10	Closed		
1943	Sep 16–Oct 15	30	10	Closed			Sep 16–Oct 15	15	Sep 16–Oct 15		10	Closed		
1944	Sep 16–Oct 15	30	10	Sep 16–Oct 15	30	10	Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1945	Sep 16–Oct 15	30	10	Sep 16–Oct 15	30	10	Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1946	Sep 16–Oct 15	30	10	Closed			Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1947	Sep 16–Oct 15	30	10	Closed			Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1948	Sep 16–Oct 15	30	10	Closed			Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1949	Sep 16–Oct 15	30	10	Closed			Sep 16–Oct 15	30	Sep 16–Oct 15		10	Closed		
1950	Sep 16–Oct 15	30	8	Closed			Sep 16–Oct 15	30	Sep 16–Oct 15		8	Closed		
1951–67	Closed			Closed			Closed		Closed			Closed		
1968	Sep 28–06	9	5	Closed			Sep 28–Oct 6	9	Sep 28–Oct 6		5	Closed		
1969	Oct 11–19	9	5	Closed			Oct 11–19	9	Oct 11–19		5	Closed		
1970	Oct 17–25	9	5	Sep 12–20	9	5	Oct 17–25	9	Oct 17–25		5	Sep 12–20	9	5
1971	Oct 16–24	9	5	Sep 4–26	23	5	Sep 11–Oct 3	23	Sep 11–Oct 3		5	Sep 4–26	23	5
1972	Oct 14–23	10	5	Sep 9–Oct 1	23	5	Sep 2–24	23	Sep 2–24		5	Sep 1–23	23	5
1973	Oct 12–31	20	5	Sep 8–Oct 7	30	5	Sep 1–30	30	Sep 1–30		5	Sep 15–30	16	5
1974	Oct 12–31	20	5	Sep 7–Oct 6	30	5	Sep 1–20	20	Oct 12–31	20	5	Sep 2–30	29	5
1975	Oct 11–Nov 9	30	5	Sep 6–Oct 15	40	5	Sep 6–25	20	Oct 11–20	10	5	Sep 1–30	30	5
1976	Oct 9–Nov 7	30	5	Sep 4–Oct 3	30	5	Sep 1–20	20	Oct 2–21	20	5	Sep 1–30	30	5
1977	Oct 12–Nov 10	30	5	Sep 3–Oct 2	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1978	Oct 12–Nov 10	30	5	Sep 2–Oct 1	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1979	Oct 12–Nov 10	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 5–24	20	5	Sep 1–30	30	5
1980	Oct 10–Nov 8	30	5	Sep 1–30	30	5	Sep 6–25	20	Oct 4–23	20	5	Sep 1–30	30	5
1981	Oct 9–Nov 7	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 3–22	20	5	Sep 1–30	30	5
1982	Oct 8–Nov 6	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 2–21	20	5	Sep 1–30	30	5
1983	Oct 7–Nov 5	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1984	Oct 11–Nov 10	31	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1985	Oct 11–Nov 9	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 2–30	29	5

Appendix B. Continued.

	Arizona[a]			Colorado			New Mexico[b] North		New Mexico[b] South			Utah		
Year	Dates	Days	Bag	Dates	Days	Bag	Dates	Days	Dates	Days	Bag	Dates	Days	Bag
1986	Oct 10–Nov 8	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1987	Oct 9–Nov 7	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1988	Oct 7–Nov 5	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1989	Oct 13–Nov 11	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1990	Oct 12–Nov 10	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1991	Oct 11–Nov 9	30	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 2–30	29	5
1992	Oct 13–22	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1993	Oct 13–22	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1994	Oct 12–21	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1995	Oct 18–27	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1996	Oct 16–25	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 2–30	29	5
1997	Oct 15–24	10	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1998	Oct 2–9	8	3	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
1999	Oct 1–8	8	4	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2000	Sep 29–Oct 9	11	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2001	Sep 28–Oct 8	11	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2002	Sep 27–Oct 7	11	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 2–30	29	5
2003	Sep 26–Oct 6	11	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2004	Sep 24–Oct 4	11	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2005	Sep 9–Oct 3	25	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2006	Sep 15–Oct 8	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2007	Sep 14–Oct 7	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2008	Sep 12–Oct 5	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2009	Sep 11–Oct 4	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2010	Sep 10–Oct 3	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2011	Sep 9–Oct 2	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2012	Sep 7–Sep 30	24	5	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	5
2013	Sep 6–Sep 29	24	2	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 2–30	29	2
2014	Sep 5–Sep 28	24	2	Sep 1–30	30	5	Sep 1–20	20	Oct 1–20	20	5	Sep 1–30	30	2
2015–18	Sep 1–Nov 30	14	2	Sep 1–Nov 30	14	2	Sep 1–Nov 30	14	Oct 1–Nov 30	14	2	Sep 1–Nov 30	14	2[c]

[a] Arizona used a zoned season during 2005–2009. The season in the southern zone was shorter than in the northern zone listed in the table with a delayed opening date of 1 (2006–2009) or 2 (2005) weeks and same closing date. The North Zone was defined as Management Units 1–15C, 16A, 17–20A, 23, and 24A; and the South Zone 15D, 16B, 20B, 20C, 21, 22, and 24B–46.

[b] New Mexico used a zoned season beginning in 1974. The northern zone was defined as that area lying north of U.S. Highway 60 and the southern zone in that area lying south of U.S. Highway 60. The zones were redefined in 1975. The northern zone was that area lying north and east of a line following U.S. Highway 60 from the Arizona state line east to Interstate Highway 25 at Socorro and thence south along Interstate Highway 25 to the Texas state line. The southern zone was that area lying south and west of a line following U.S. Highway 60 from the Arizona state line east to Interstate Highway 25 at Socorro and thence south along Interstate Highway 25 to the Texas state line.

[c] The possession limit is 3 times the daily bag.

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