U.S. Fish & Wildlife Service

Band-tailed Pigeon

Population Status, 2011

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U.S. Fish and Wildlife Service
Division of Migratory Bird Management
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Cover photograph: Female band-tailed pigeon by Todd A. Sanders ©

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BAND-TAILED PIGEON POPULATION STATUS, 2011

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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 2010. The all-bird Breeding Bird Survey (BBS) provides an annual index to abundance of 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 are estimated from the Migratory Bird Harvest Information Program. The BBS provided evidence that the abundance of Pacific Coast band-tailed pigeons decreased (–2.6% per year, credible interval = –5.1 to –1.1) over the long term (1968–2010). Trends in abundance during the recent 10- and 5-year periods were inconclusive. The MSS, however, provided evidence that abundance decreased during the recent 7- (–8.1% per year CI = –15.2 to –2.0) and 5-year (–8.4% per year, CI = –14.3 to –3.1) periods. Current (2010) estimates of total harvest, active hunters, and total hunter days afield were 18,400 ± 4,224 (estimate ± SE) birds, 6,400 hunters, and 13,700 ± 2,307 days afield. Composition of harvest was 21.7% (73 of 336) hatching year birds during the 2010 season. For Interior band-tailed pigeons, the BBS provided evidence that abundance decreased (–4.3% per year, 95% CI = –8.2 to –1.4) over the long term (1968–2010). Trends in abundance during the recent 10- and 5-year periods were inconclusive. Current (2010) estimates of total harvest, active hunters, and total hunter days afield were 5,000 ± 1,582 birds, 4,100 hunters, and 13,600 ± 2,498 days afield. Harvest comprised 16.0% (4 of 25) hatching year birds during the 2010 season. Current estimates of the age-related vulnerability to harvest for these populations are unavailable.

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 detailed in population-specific (Pacific Coast and Interior) management plans (Pacific Flyway Study Committee and Central Flyway Webless Migratory Game Bird Technical Committee 2001, Pacific Flyway Study Committee 1994).

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.

The primary purpose of this report is to facilitate the prompt distribution of timely information. Results are preliminary and may change with the inclusion of additional data.

DISTRIBUTION AND ABUNDANCE

Band-tailed pigeons are divided into six subspecies, only two of which occur north of Mexico, and each of those occupies a disjunct geographic distribution in western North America: the Pacific Coast and Interior (Fig. 1). The coastal 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 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 eastcentral Utah south through Arizona, New Mexico, extreme western Texas into the Sierra Madre Occidental of Mexico; and winters from northern Mexico south to at least Michoacan. Some interchange occurs between the two subspecies (Schroeder and Braun 1993).

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).

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 <250,000 birds in the Interior region (estimated from harvest reports and band recovery rates, Braun 1994). This demonstrates the likely sizes and disparity between the two populations at that time.

ECOLOGY

Band-tailed pigeons inhabit coniferous forests primarily and are highly mobile habitat generalists. Individuals potentially travel long distances (up to about 32 miles) daily to feed and drink. They have high fidelity to a given area 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 dispersed below the forested hills where they nest, particularly before the onset of natural foods, which are preferred. Adults, especially in summer and particularly the Pacific Coast region, visit natural springs and water bodies high in mineral salts frequently 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. 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 three nesting cycles a year under ideal conditions. 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.

Comprehensive material on the life history of the band-tailed pigeon may be found in Keppie and Braun (2000), Braun (1994), Jarvis and Passmore (1992), and Neff (1947).

MANAGEMENT

Band-tailed pigeons are a valued game bird offering a different type of pursuit than any other game bird. Hunting band-tailed pigeons has been allowed in all states within the species range except Texas. However, seasons have been periodically closed due to concern over overharvest or population status. Seasons have been closed in one or more states within each population during 55 (Interior) and 29 (Pacific Coast) of the last 98 years (1913–2010) (Appendix A and B).

Monitoring information about population status is presently limited to annual estimates of relative abundance and harvest (absolute harvest and age ratios in the harvest). Apparent long-term population declines have led to especially restrictive hunting regulations for the last 19 years in the Pacific Coast states (9-day season with a 2 bird bag limit, California has a season in each of 2 zones), but regulations have remained relatively liberal in the Interior states (20–30-day season with a 5 bird bag limit, New Mexico

has a season in each of 2 zones). Hunter participation and harvest are at an all-time low for both populations. Since 1999, Interior band-tailed pigeon harvest has been estimated from 1,300 to 5,000 (mean = 3,136) birds per year, while Pacific Coast population harvest has been estimated between 8,200 to 30,200 (mean = 17,000) birds per year.

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*, introduced with 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 abundance. Existing surveys for this species provide only trends in abundance and no information about absolute 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. Also, interpretation of count data at mineral sites is challenged by the lack of understanding of why these birds use mineral sites (Sanders and Jarvis 2000).

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 Interior and Pacific Coast populations of band-tailed pigeons (Sauer et al. 2007). The BBS started primarily in the eastern U.S. in 1966, central U.S. in 1967, and 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 band-tailed pigeon specific surveys 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 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 determine 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 = 48; 10 in California, 22 in Oregon, 12 in Washington, and 4 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).

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 have been used to obtain rough estimates of the number of band-tailed pigeon hunters and birds killed. Thus, the data were of limited use at a population range level. Those data are no longer collected by states (with the exception of New Mexico).

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 and so harvest of non-waterfowl species could not be estimated reliably. To remedy this problem and 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, 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.

Parts Collection Survey

The Parts Collection Survey (PCS) is a secondary component of the national harvest survey, which began in 1961. The PCS is the primary means by which the composition (species, age, and sex) of the annual harvest is assessed. The survey selects a random sample of hunters registered with the program. These persons are sent envelopes in which to return one wing from each bird harvested. All wings received annually are examined at wing bees, one in each of the four flyways, in which the wings are categorized by species, age, and sex. Band-tailed pigeons were included in the PCS beginning in 1994.

Estimation of Trends in Abundance

Beginning with the 2010 annual status report, BBS and MSS trends were estimated using a log-linear hierarchical model and Bayesian analytical framework (Sauer et al. 2008, Sauer et al. 2010) instead of the previously used route regression approach (Link and Sauer 1994). Both methods provide trend and annual index values that are generally comparable. The hierarchical model, however, has a more rigorous and realistic theoretical basis than the weightings used in the route regression approach, and the indices and trends are directly comparable as trends are calculated directly from the indices unlike the former analysis.

With 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 of 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. The model is fit using Bayesian methods. 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 defined as exponentiated year and trend effects, and trends are defined 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

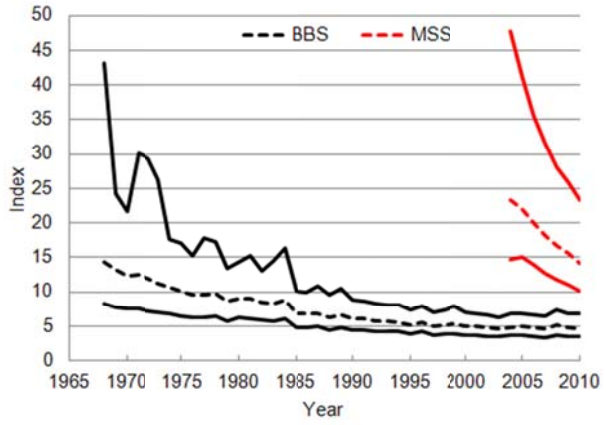

Figure 2. Abundance indices (dashed lines) and 95% credible intervals (solid lines) for the Pacific Coast population of band-tailed pigeons based on results from the North American Breeding Bird Survey and Mineral Site Survey (scaled by dividing the index by 50.

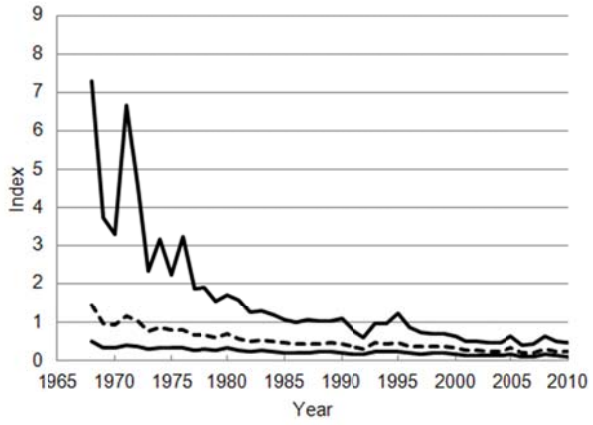

Figure 3. Abundance indices (dashed lines) and 95% credible intervals (solid lines) for the Interior population of band-tailed pigeons based on results from the North American Breeding Bird Survey.

state or province and region. We present the median and 95th percentile credible intervals for estimates. 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 CI > 0 and there is evidence of negative trend if the CI < 0. If the CI contains 0, then there is inconclusive evidence about trend in abundance. The reported sample sizes are the 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, we used only data starting in 2004 when the survey became operational. Also we limited sites to those naturally occurring with known source of mineral that would likely be accessible for counting in the future and that had at least 2 annual surveys.

MONITORING RESULTS

The Breeding Bird Survey

Results of the BBS are presented in Figs. 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 2.6% per year (CI = –5.1 to –1.1). Trends for Pacific Coast pigeons during the recent 10- and 5-year periods were inconclusive. Similarly for Interior band-tailed pigeons, the trend in the median annual count since 1968 decreased 4.3% per year (CI = –8.2 to –1.4). Trends for Interior pigeons during the recent 10- and 5-year periods were inconclusive. 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 suggest that the trend in the median annual count of Pacific Coast band-tailed pigeons seen at mineral sites decreased 8.1% per year (CI = –15.2 to –2.0) since the survey became operationally in 2004 and 8.4% per year (CI = –14.3 to –3.1) in the last 5 years (Fig. 2, Tables 4 and 5). Annual indices of Pacific Coast band-tailed pigeon abundance by state from the MSS are provided in Table 6.

The MSS and BBS show similar results for Pacific Coast pigeons over the recent 5 years (where data are comparable) in that the estimated trend in annual pigeon counts is negative (Fig. 2). However, there is considerable discrepancy in the apparent magnitude of the trend point estimate between these two surveys, but credible intervals overlap.

Harvest Information Program

Results of the HIP are presented in Tables 7–9 for Pacific Coast band-tailed pigeons and Tables 10–12

for Interior band-tailed pigeons. According to preliminary estimates from 2010, total harvest, active hunters, and total hunter days afield for Pacific Coast band-tailed pigeons were 18,400 ± 4,224 (estimate ± SE) birds, 6,400 hunters, and 13,700 ± 2,307 days afield, respectively. For Interior band-tailed pigeons, total harvest, active hunters, and total hunter days afield were 5,000 ± 1,582 birds, 4,100 hunters, and 13,600 ± 2,498 days afield, respectively.

Parts Collection Survey

Results of the PCS are presented in Tables 13 and 14. Composition of Pacific Coast band-tailed pigeon harvest during 2010 was 21.7% hatching year birds based on a total sample of 336 birds. Composition of Interior band-tailed pigeon harvest during 2010 was 16.0% hatching year birds, however, sample size was only 25 birds. Caution should be used in interpreting state-specific estimates with small sample sizes. Also, numbers 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.

There is not adequate data to evaluate current differential vulnerability rates between young and adult birds (young:adult). There is, however, some data for male and females combined during 1968–1976 for the Interior population and during 1962–1977 for the Pacific Coast population. Estimates of young per adult bird in the harvest are variable among years and range from 0.20 ± 0.20 to 5.62 ± 5.92 with a mean of 1.90 ± 0.60 for the Interior population and 0.55 ± 0.24 to 1.54 ± 0.81 with a 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, young are nearly twice as likely to be harvested compared to adults in the Interior population, whereas young and adult birds have nearly equal probability of harvest in the Pacific Coast population. The difference in age-related vulnerability between the populations may be related to the use of mineral sites by the Pacific Coast population and associated exposure to harvest. It is unknown whether these mean age-related vulnerability estimates apply to more recent years. If they do, then the proportion of young in the Interior population may be about half of that estimated from PCS, whereas the proportion of young in the Pacific Coast population may be as estimated from PCS.

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LITERATURE CITED

Braun, C. E. 1994. Band-tailed Pigeon. Pages 60–74 in T. C. Tacha and C. E. Braun, editors. Migratory shore and upland game bird management in North America. International Association of Fish and Wildlife Agencies, Washington, D.C.

Braun, C. E., D. E. Brown, J. C. Pederson, and T. P. Zapatka. 1975. Results of the Four Corners cooperative band-tailed pigeon investigation. U.S. Fish and Wildlife Service, Resource Publication 126.

Casazza, M. L., C. T. Overton, J. L. Yee, D. L. Orthmeyer, M. R. Miller, and R. A. Schmitz. 2003. Development of a reliable population index for Pacific Coast band-tailed pigeons: final report. U.S. Geological Survey, Western Ecological Research Center, Dixon Field Station, Dixon, CA. Unpublished report.

Casazza, M. L., J. L. Yee, M. R. Miller, D. L. Orthmeyer, D. R. Yparraguirre, R. L. Jarvis, and C. T. Overton. 2005. Evaluation of current population indices for band-tailed pigeons. Wildlife Society Bulletin 33(2):606–615.

Jarvis, R. L., and M. F. Passmore. 1992. Ecology of band-tailed pigeons in Oregon. U.S. Fish and Wildlife Service, Biological Report 6.

Keppie, D. M., and C. E. Braun. 2000. Band-tailed pigeon (Columbia fasciata). In A. Poole and F. Gill, editors. The Birds of North America, No.

530. The Birds of North America, Inc., Philidelphia, PA.

Link, W. A., and J. R. Sauer. 1994. Estimating equations estimates of trends. Bird Populations 2:23–32.

Neff, J. A. 1947. Habits, food, and economic status of the band-tailed pigeon. U.S. Fish and Wildlife Service, North American Fauna Number 58.

Overton, C. T., R. A. Schmitz, and M. L. Casazza. 2005. Post-precipitation bias in band-tailed pigeon surveys conducted at mineral sites. Wildlife Society Bulletin 33(3):1047–1054.

Pacific Flyway Study Committee and Central Flyway Webless Migratory Game Bird Technical Committee. 2001. Pacific and Central Flyways management plan for the Four Corners population of band-tailed pigeons. Pacific Flyway Council, c/o U.S. Fish and Wildlife Service, Portland, Oregon.

Pacific Flyway Study Committee. 1994. Pacific Flyway management plan for the Pacific coast population of band-tailed pigeons. Pacific Flyway Council, c/o U.S. Fish and Wildlife Service, Portland, Oregon.

Sanders, T. A., and R. L. Jarvis. 2000. Do band-tailed pigeons seek a calcium supplement at mineral sites? Condor 102:855–863.

Sauer, J. R., J. E. Hines, and J. Fallon. 2007. The North American Breeding Bird Survey, results and analysis 1966–2006. Version 10.13.2007. USGS Patuxent Wildlife Research Center, Laurel, MD.

Sauer, J. R., W. A. Link, W. L. Kendall, and D. D. Dolton. 2010. Comparative Analysis of mourning dove population change in North America. Journal of Wildlife Management 74, in press.

Sauer, J. R., W. A. Link, W. L. Kendall, J.R. Kelley, and D. K. Niven. 2008. A hierarchial model for estimating change in American woodcock populations. Journal of Wildlife Management, 72:204-214.

Schroeder, M. A., and C. E. Braun. 1993. Movement and philopatry of band-tailed pigeons captured in Colorado. Journal of Wildlife Management 57:103–112.

Stromberg, M. R., W. D. Koenig, E. L. Walters, and J. Schweisinger. 2008. Estimate of Trichomonas gallinae-induced mortality in band-tailed pigeons, upper Carmel Valley, California, winter 2006–2007. The Wilson Journal of Ornithology 120:603–606.

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 and states during the **43-year** (1968–2010) duration of the survey.

Region		Credible interval		
State	Trend	Lower	Upper	N
Pacific Coast	-2.6	-5.1	-1.1	250
British Columbia	-5.3	-8.6	-3.0	38
California	0.4	-1.4	1.9	132
Oregon	-0.3	-2.2	1.5	44
Washington	-0.3	-2.4	1.9	36
Interior	-4.3	-8.2	-1.4	66
Arizona	-2.6	-6.3	1.0	18
Colorado	-1.3	-7.9	4.5	26
New Mexico	-7.0	-13.4	-2.0	15
Utah	-2.5	-13.0	6.5	7

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

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 and states during the recent **10-year** (2001–2010) period.

Region		Credible interval		
State	Trend	Lower	Upper	N
Pacific Coast	-0.7	-3.0	2.5	176
British Columbia	-5.3	-9.7	0.0	21
California	1.0	-2.3	5.3	92
Oregon	-0.5	-5.3	3.7	37
Washington	1.9	-3.0	11.1	26
Interior	-2.2	-9.6	5.2	34
Arizona	-2.4	-11.5	6.1	9
Colorado	3.1	-13.7	22.9	14
New Mexico	-7.7	-23.4	4.7	10
Utah	-0.8	-27.4	45.5	1

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

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 and states during the recent **5-year** (2006–2010) period.

Region		Credible interval		
State	Trend	Lower	Upper	N
Pacific Coast	-0.6	-5.5	6.0	137
British Columbia	-5.2	-14.4	6.6	15
California	0.2	-6.5	9.8	72
Oregon	1.3	-6.6	17.0	29
Washington	0.5	-11.5	16.2	21
Interior	3.3	-12.3	23.7	21
Arizona	-3.2	-24.2	13.6	7
Colorado	35.4	-11.8	126.3	6
New Mexico	-2.3	-26.5	57.7	8
Utah	†[b]	†	†	0

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

[b] No estimate available for Utah as no birds were observed during the 5-year period.

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 and states during the **7-year** (2004–2010) duration of the survey.

Region		Credible interval		
State	Trend	Lower	Upper	Sites
Pacific Coast	-8.1	-15.2	-2.0	48
British Columbia	-15.8	-28.1	-1.4	4
California	1.5	-6.3	10.2	10
Oregon	-4.0	-10.4	3.1	22
Washington	-8.8	-15.0	-2.3	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 and states during the recent **5-year** (2006–2010) period.

Region		Credible interval		
State	Trend	Lower	Upper	Sites
Pacific Coast	-8.4	-14.3	-3.1	48
British Columbia	-15.1	-26.3	-1.5	4
California	0.1	-9.2	9.1	10
Oregon	-4.8	-11.6	2.4	22
Washington	-10.8	-18.6	-4.0	12

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

Table 6. Estimated annual abundance **indices**[a] and 95% credible intervals for Pacific Coast band-tailed pigeons based on **Mineral Site Survey** data for the region and states, 2004–2010.

Region			Credible intervals	
State	Year	Index	Lower	Upper
Pacific Coast	2004	233.6	147.3	477.6
	2005	221.0	149.7	413.7
	2006	200.0	139.1	355.7
	2007	181.0	127.3	315.8
	2008	166.8	118.4	280.0
	2009	156.0	110.7	258.3
	2010	140.9	100.2	233.4
British Columbia	2004	328.8	104.3	1155.0
	2005	281.7	104.5	904.0
	2006	224.1	82.9	703.9
	2007	198.3	74.3	615.1
	2008	155.8	57.5	493.1
	2009	138.8	49.3	443.8
	2010	116.9	41.1	382.5
California	2004	89.9	46.8	190.8
	2005	92.7	50.5	196.1
	2006	98.2	54.4	207.5
	2007	97.7	54.2	208.9
	2008	101.1	55.6	218.8
	2009	93.5	50.6	204.1
	2010	98.0	52.8	215.3
Oregon	2004	239.1	143.8	406.4
	2005	239.5	152.8	392.7
	2006	228.4	147.8	368.3
	2007	218.6	143.4	347.7
	2008	199.7	131.1	317.7
	2009	202.9	133.3	328.6
	2010	186.7	121.9	304.6
Washington	2004	240.6	137.4	495.8
	2005	239.2	140.4	483.3
	2006	220.5	129.9	434.3
	2007	184.4	108.4	367.2
	2008	184.0	107.8	359.1
	2009	163.8	95.7	323.0
	2010	138.1	80.6	276.8

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

Table 7. 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, 1999–2010.

	California		Oregon		Washington		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	19,300	101	3,800	42	†[a]	†	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

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

Table 8. 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, 1999–2010.

	California		Oregon		Washington		Total[a]	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	3,900	48	1,500	47	†[b]	†	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	†	†
2004	4,700	37	1,500	36	500	64	†	†
2005	3,900	39	500	14	700	58	†	†
2006	6,000	35	400	13	500	61	†	†
2007	4,900	33	700	113	900	44	6,500	†
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	†

[a] Estimates in total 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.

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

Table 9. 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, 1999–2010.

	California		Oregon		Washington		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	9,100	54	3,500	33	†[a]	†	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	11,00	39	1,100	26	1,500	96	13,700	33

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

Table 10. 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, 1999–2010.

	Arizona		Colorado		New Mexico		Utah		Total	
Year	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI	Estimate	CI
1999	500	154	700	129	0	0	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	†[a]	†	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

[a] No estimate available.

Table 11. 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, 1999–2010.

	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	<50	46	900	†[b]
2000	600	79	400	95	300	67	<50	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	†	†
2004	900	56	300	29	100	103	50	92	†	†
2005	800	69	200	46	100	109	100	134	†	†
2006	600	73	900	52	100	172	200	92	†	†
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	†

[a] Estimates in total 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.
[b] No estimate available.

Table 12. 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, 1999–2010.

	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

Table 13. Estimated **age** structure of **Pacific Coast** band-tailed pigeon harvest during September and December based on Parts Collection Survey data, 1994 to 2010. Values are percentage of hatch year birds (%), number of hatch year birds (n), and number of both hatch year and after hatch year birds examined (N).

	California			Oregon			Washington			Total		
Year	%	n	N	%	n	N	%	n	N	%	n	N
1994	43.0	220	512	23.2	134	578	†[a]	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

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

Table 14. Estimated **age** structure of **Interior** band-tailed pigeon harvest during September and October based on Parts Collection Survey data, 1994 to 2010. Values are percentage of hatch year birds (%), number of hatch year birds (n), and number of both hatch year and after hatch year birds examined (N).

	Arizona			Colorado			New Mexico			Utah			Total		
Year	%	n	N	%	n	N	%	n	N	%	n	N	%	n	N
1994	24.2	16	66	66.7	4	6	28.6	14	49	†[a]	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

[a] No estimate available.

Appendix A. Hunting **season** dates, days, and daily bag limits (possession limits are twice the daily bag limit) for **Pacific Coast** band-tailed pigeon seasons, 1913–2010.

	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

[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.

Appendix B. Hunting **season** dates, days, and daily bag limits (possession limits are twice the daily bag limit) for **Interior** band-tailed pigeon seasons, 1913–2010.

							New Mexico[a]							
	Arizona			Colorado			North		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

[b] 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.

[a] 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.

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