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Mourning Dove

Population Status, 2005



Cover photograph: Mourning dove in yucca by Roy Tomlinson

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MOURNING DOVE BREEDING POPULATION STATUS, 2005

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Abstract: This report includes Mourning Dove Call-count Survey information gathered over the last 40 years within the conterminous United States. Trends were calculated for the most recent 2- and 10-year intervals and for the entire 40-year period. Between 2004 and 2005, the average number of doves heard per route increased significantly in the Eastern Management Unit, did not change significantly in the Central Unit, and decreased significantly in the Western Unit. Over the most recent 10 years, no significant trend was indicated for doves heard in either the Eastern or Western Management Unit while the Central Unit showed a significant decline. Over the 40-year period, all 3 units exhibited significant declines. In contrast, for doves seen over the 10-year period, a significant increase was found in the Eastern Unit while no trends were found in the Central and Western Units. Over 40 years, no trend was found for doves seen in the Eastern and Central Units while a significant decline was indicated for the Western Unit.

The mourning dove (*Zenaida macroura*) is a migratory bird, thus, authority and responsibility for its management is vested in the Secretary of the Interior. This responsibility is conferred by the Migratory Bird Treaty Act of 1918 which, as amended, implements migratory bird treaties between the United States and other countries. Mourning doves are included in the treaties with Great Britain (for Canada) and Mexico. These treaties recognize sport hunting as a legitimate use of a renewable migratory bird resource. In recent years, less than 6% of the fall population of mourning doves was estimated to have been harvested annually. As one of the most abundant species in both urban and rural areas of North America, it is familiar to millions of people. Maintenance of mourning dove populations in a healthy, productive state is a primary management goal. To this end, management of doves includes assessment of population status, regulation of harvest, and habitat management. Call-count surveys are conducted annually in the 48 conterminous states by state, federal, local, and tribal biologists to monitor mourning dove populations. The resulting information on status and trends is used by wildlife administrators in setting 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

Mourning doves breed from the southern portions of Canada throughout the United States into Mexico, Bermuda, the Bahamas and Greater Antilles, and scattered locations in Central America (Fig. 1). While mourning doves winter throughout much of the breeding range, the majority winter in the southern United States, Mexico, and south through Central America to western Panama (Aldrich 1993, Mirarchi and Baskett 1994).

The mourning dove is one of the most widely distributed and abundant birds in North America (Peterjohn et al. 1994, Fig. 1). Although not known precisely, the fall population for the United States was estimated to be about 475 million in the 1970's (Dunks et al. 1982, Tomlinson et al. 1988). We believe that the mourning dove population has declined to a present population size of slightly more than 400 million in the United States.

POPULATION MONITORING

The Mourning Dove Call-count Survey was developed to provide an annual index to population size (Dolton 1993). This survey is based on work by McClure (1939) in Iowa. Field studies demonstrated the feasibility of the survey as a method for detecting annual changes in mourning dove breeding populations (Foote and Peters 1952). In the United States, the survey currently includes more than 1,000 randomly selected routes, stratified by physiographic region. The total number of

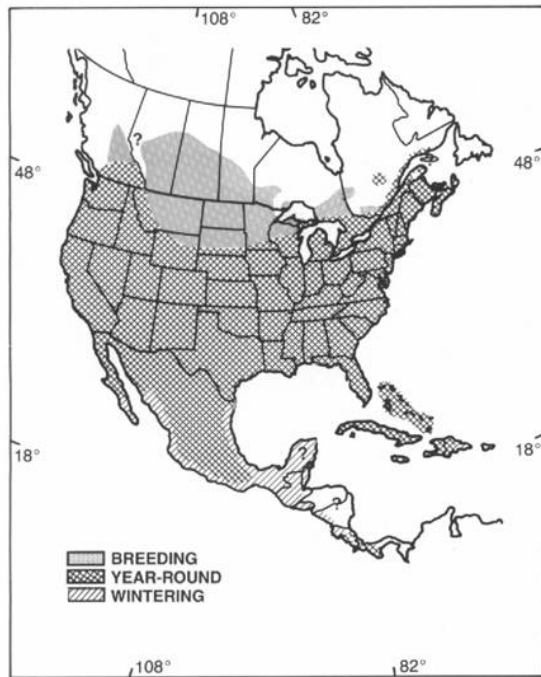


Fig. 1. Breeding and wintering ranges of the mourning dove (adapted from Mirarchi and Baskett 1994).

doves heard on each route is used to determine trends in populations and is used to develop an index to population size during the breeding season. Indices for doves seen are also presented in this report, but only as supplemental information for comparison with indices of doves heard. Even though both the numbers of doves heard and seen are counted during the survey, they are recorded separately.

Within the United States, there are 3 zones that contain mourning dove populations that are largely independent of each other (Kiel 1959). These zones encompass the principal breeding, migration, and U.S. wintering areas for each population. As suggested by Kiel (1959), these 3 areas were established as separate management units in 1960 (Kiel 1961). Since that time, management decisions have been made within the boundaries of the Eastern (EMU), Central (CMU), and Western (WMU) Management Units (Fig. 2).

The EMU was further divided into 2 groups of states for analyses. States permitting dove hunting were combined into one group and those prohibiting dove hunting into another. Wisconsin became a hunting state for the first time in 2003; Michigan and Minnesota became hunting states in 2004. Additionally, some states were grouped to increase sample sizes. Maryland and Delaware were combined; Vermont, New Hampshire, Maine,

Massachusetts, Connecticut, and Rhode Island were combined to form a New England group. Due to its small size, Rhode Island, which is a hunting state, was included in this nonhunting group of states for analysis.

METHODS

The Call-count Survey

Each call-count route is usually located on secondary roads and has 20 listening stations spaced at 1-mile intervals. At each stop, the number of doves heard calling, the number seen, and the level of disturbance (noise) that impairs the observer's ability to hear doves are recorded. The number of doves seen while driving between stops is also noted.

Counts begin one-half hour before sunrise and continue for about 2 hours. Routes are run once between 20 May and 5 June. Intensive studies in the eastern United States (Foote and Peters 1952) indicated that dove calling is relatively stable during this period. Surveys are not conducted when wind velocities exceed 12 miles per hour or when it is raining.

Estimation of Population Trends

A population trend is defined as an interval-specific rate of change. For two years, the change is the ratio of the dove population in an area in one year to the population in the preceding year. For more than 2 years of data, the trend is expressed as an average annual rate of change. A trend was first estimated for each route by numerically solving a set of estimating equations (Link and Sauer 1994). Observer data were used as covariables to adjust for differences in observers' ability to hear or see doves. The reported sample sizes are the number of routes on which a given trend estimate is based. This number may be less than the actual number of routes surveyed for several reasons. The estimating equations approach requires at least 2 non-zero counts by at least one observer for a route to be used. Routes that did not meet this requirement during the interval of interest were not included in the sample size. State and management unit trends were obtained by calculating a mean of all route trends weighted by land area, within-route variance in counts, and density (mean numbers of doves counted on each route). Variances of state and management unit trends were estimated by using route trends and a

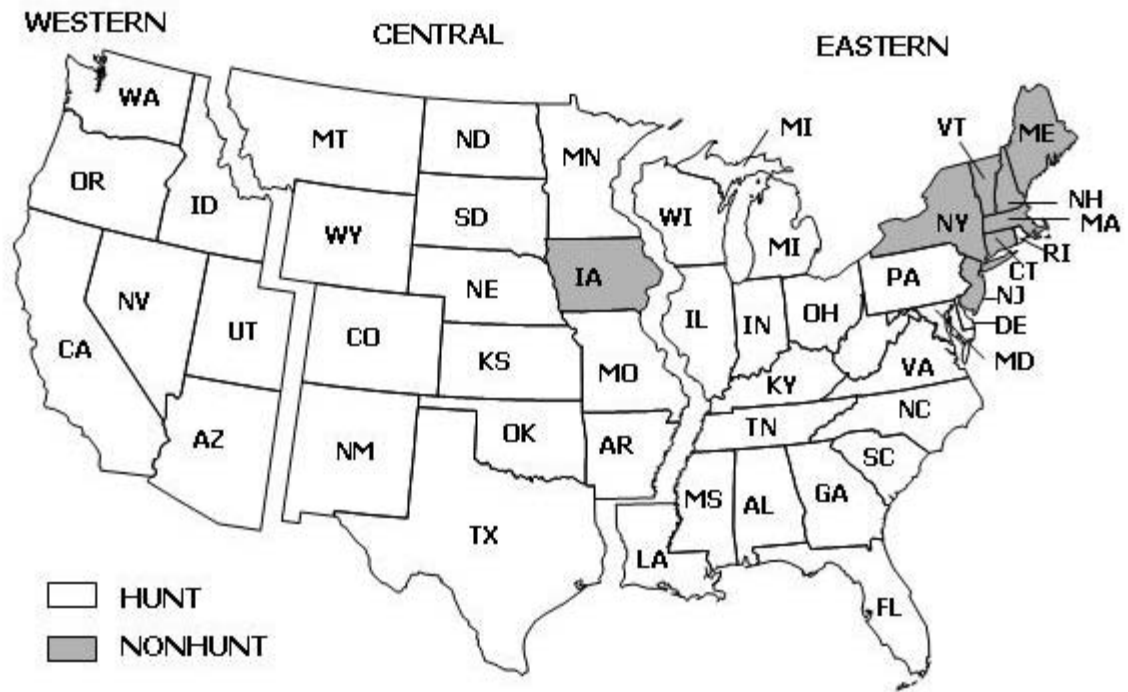


Fig. 2. Mourning dove management units with 2004 hunting and nonhunting states.

statistical procedure known as bootstrapping (Geissler and Sauer 1990).

The annual change, or trend, for each area in doves heard over the most recent 2- and 10-year intervals and for the entire 40-year period were estimated. Additionally, trends in doves seen were estimated over the 10- and 40-year periods as supplemental information for comparison.

For purposes of this report, statistical significance was defined as $P < 0.05$, except for the 2-year comparison where $P < 0.10$ was used because of the low power of the test. Significance levels are approximate for states with less than 10 routes.

Estimation of Annual Indices

Annual indices show population fluctuations about fitted trends (Sauer and Geissler 1990). The estimated indices were determined for an area (state or management unit) by finding the deviation between observed counts on a route and those predicted on the route from the area trend estimate. These residuals were averaged by year for all

routes in the area of interest. To adjust for variation in sampling intensity, residuals were weighted by the land area of the physiographic regions within each state. These weighted average residuals were then added to the fitted trend for the area to produce the annual index of abundance. This method of determining indices superimposes yearly variation in counts on the long-term fitted trend. These indices should provide an accurate representation of the fitted trend for regions that are adequately sampled by survey routes. Additionally, only data from within an area are incorporated into the area's index. Since the indices are adjusted for observer differences and trend, the index for an area may be quite different from the actual count. In order to estimate the percent change from 2004 to 2005, a short-term trend (2 years) was calculated. The percent change estimated from this short-term trend analysis is the best estimator of annual change. Attempts to estimate short-term trends from the breeding population indices (which were derived from residuals of the long-term trends) will yield less precise results. The annual index value incorporates data from a large number of routes that are not comparable between the two years 2004 and 2005,

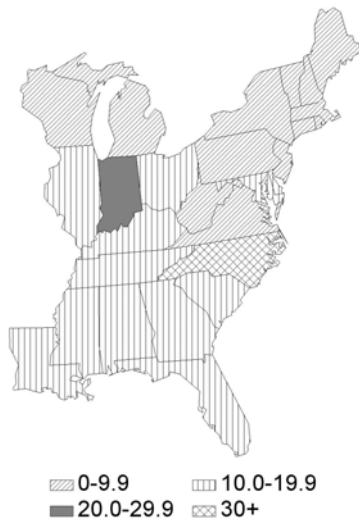


Fig. 3. Mean number of mourning doves heard per route by state in the Eastern Management Unit, 2004-2005.

i.e., routes not run by the same observers. Therefore, the index is much more variable than the trend estimate.

In a separate analysis, the mean number of doves heard calling per route in 2005 was calculated for each state or groups of states. In contrast to the estimated annual indices presented in Table 3 (which illustrate population changes over time based on the regression line), the estimated densities shown in Figs. 3, 7, and 11 illustrate the average actual numbers of doves heard per route in 2004 and 2005.

RESULTS

Eastern Management Unit

The Eastern Management Unit includes 27 states comprising 30% of the land area of the United States. Dove hunting is permitted in 20 states, representing 82% of the land area of the unit (Fig. 2).

2004-2005 Population Distribution.—North Carolina had the highest count in the Unit with an average of 32 actual doves heard per route over the 2 years (Fig. 3), while Indiana averaged 20 doves heard per route. Michigan, Pennsylvania, Virginia, Wisconsin, West Virginia, the North Atlantic states, and New Jersey averaged <10 per route. All other states had mean counts in the range of 10-20 doves heard per route.

2004 to 2005 Population Changes.—The average

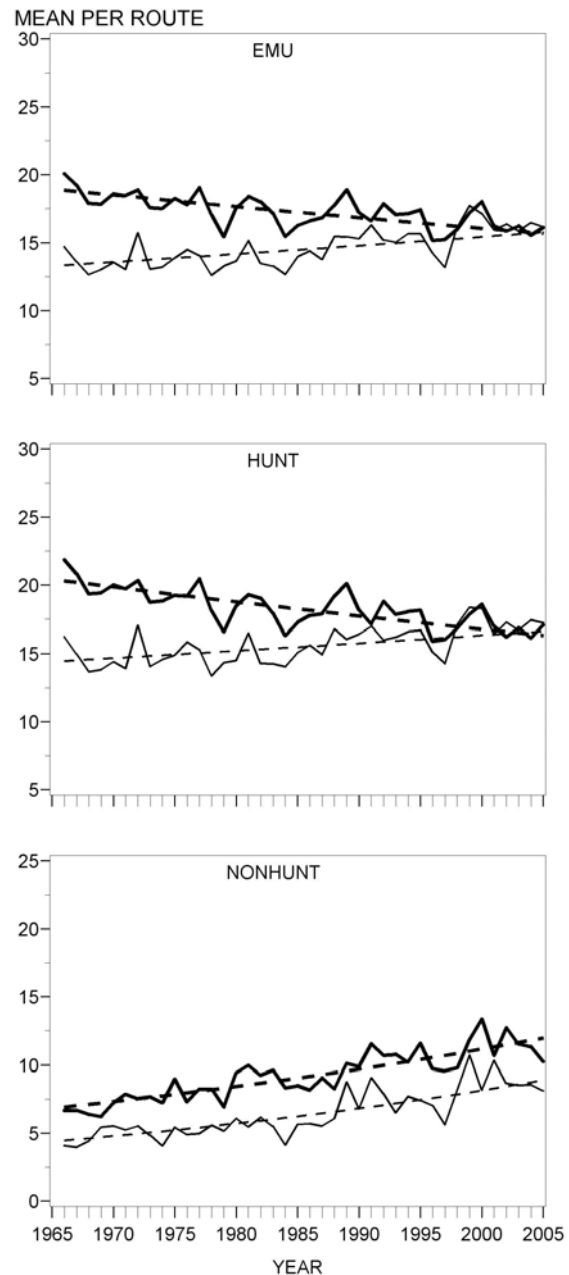


Fig. 4. Population indices and trends of breeding mourning doves in the Eastern Management Unit (EMU), combined EMU hunting states (HUNT), and combined EMU nonhunting states (NONHUNT), 1966-2005. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

number of doves heard per route in this Unit increased 5.8% (Table 1). The index also increased significantly between years in the combined hunting states (6.9%), but did not change significantly in the combined nonhunting states (-8.9%).

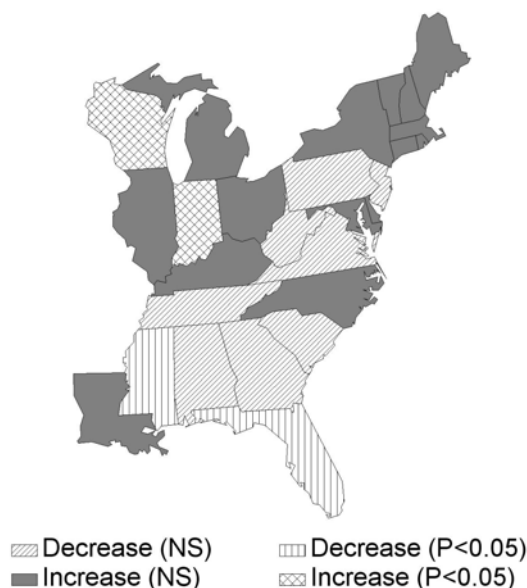


Fig. 5. Trends in number of mourning doves heard per route by state in the Eastern Management Unit, 1996-2005.

The 2005 population index of 16.1 doves heard per route for the Unit is slightly above the predicted count based on the long-term estimate of 15.7 (Fig. 4, Table 3). In the hunting states, the index of 17.1 is also above predicted estimate of 16.3 while, in the nonhunting states, the index of 10.3 is below the predicted estimate of 12.0.

The doves heard index increased significantly in Illinois, Indiana, Michigan, and Virginia while it decreased significantly in Delaware/Maryland, Florida, and New York (Table 1). No significant changes were detected for the other states.

Population Trends: 10 and 40-year.—Over the most recent 10 years, analyses indicated no significant trend in either the 2 groups of combined states or the Unit as a whole (Table 1). For the 40-year period, a declining trend was found in both the combined hunting states and the Unit while an increasing trend was indicated for the combined nonhunting states. Annual indices both for doves heard and seen are shown in Fig. 4. In contrast to doves heard, an analysis of doves seen over 10 years indicated a significant increasing trend for the combined hunting states and the Unit; no trend was shown for the combined nonhunting states (Table 2). Over 40 years, a significant increase was detected for the combined nonhunting states; no trend was shown for the combined

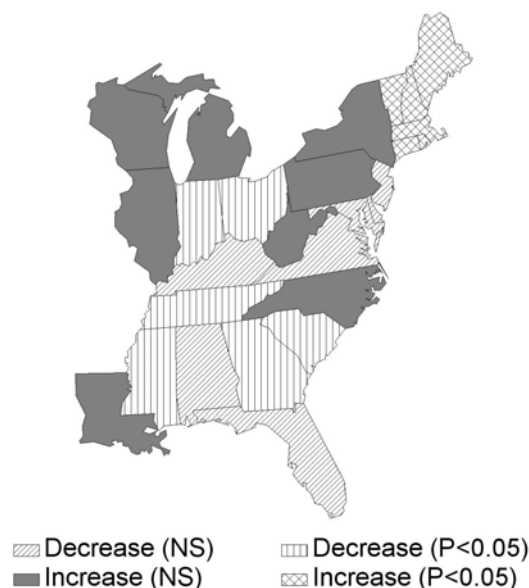


Fig. 6. Trends in the number of mourning doves heard per route by state in the Eastern Management Unit, 1966-2005.

hunting states or the Unit (Table 2).

State population trends for doves heard are shown in Fig. 5 (10-year interval) and Fig. 6 (40-year interval) and Table 1. Over 10 years, increases were found for Indiana and Wisconsin while Florida and Mississippi showed declines. Between 1966 and 2005, an increase was noted in New England while a downward trend was noted in Georgia, Indiana, Mississippi, Ohio, South Carolina, and Tennessee.

Central Management Unit

The Central Management Unit consists of 14 states, containing 46% of the land area in the U.S. It has the highest population index of the 3 Units. Within the Unit, dove hunting is permitted in 13 states (Fig. 2).

2004-2005 Population.—Nebraska, North Dakota, and Kansas had the highest actual average number of doves heard per route over the 2 years (37, 35, and 33, respectively) (Fig. 7). Historically, these states often have the highest average counts in the Nation (Table 3). Arkansas, Montana, and Wyoming were the only states with less than 10 doves per route. The remaining states had intermediate values (Fig. 7).

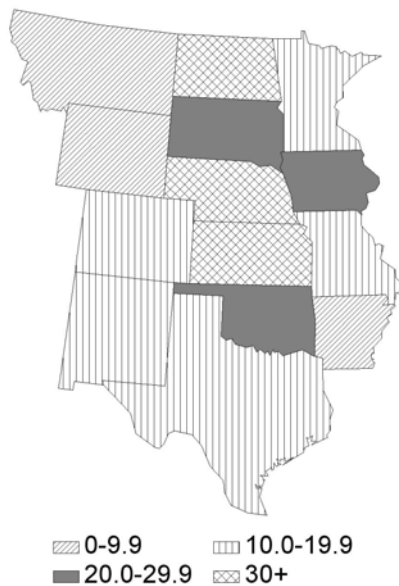


Fig. 7. Mean number of mourning doves heard per route by state in the Central Management Unit, 2004-2005.

2004 to 2005 Population Changes.—The average number of doves heard per route in the Unit did not change significantly between the 2 years although the index increased by 6.4% (Table 1). The 2005 index for the Unit of 21.9 doves heard per route is essentially the same as the predicted long-term trend estimate of 21.7 (Fig. 8, Table 3).

The population increased significantly in Kansas, New Mexico, North Dakota, and Texas; it decreased in Montana and Wyoming (Table 1).

Population Trends: 10 and 40-year.—A significant decline in doves heard was indicated for the Unit over both the short and long-term periods (Table 1). In contrast, trends in doves seen were not significant for either time period (Table 2).

State trends in doves heard over 10 years are illustrated in Fig. 9 and Table 1. Oklahoma showed an increase while Missouri had a decline during this time. Fig. 10 portrays trends over 40 years. No significant upward trend was found in doves heard for any state, but a significant downward trend was found in Colorado, Missouri, Nebraska, and Wyoming (Table 1).

Western Management Unit

Seven states comprise the Western Management Unit

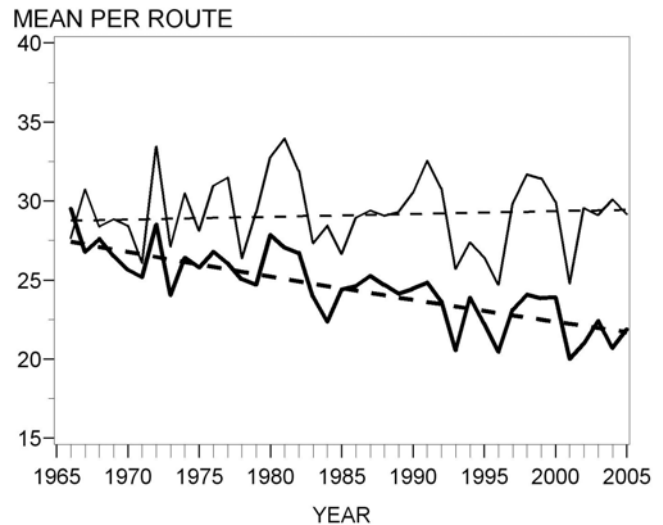


Fig. 8. Population indices and trends of breeding mourning doves in the Central Management Unit, 1966-2005. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

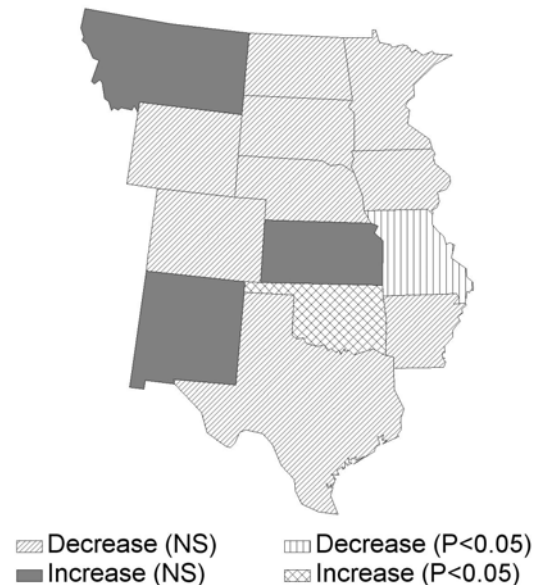


Fig. 9. Trends in number of mourning doves heard per route by state in the Central Management Unit, 1996-2005.

and represent 24% of the land area in the United States. All states within the unit permit mourning dove hunting (Fig. 2).

2004-2005 Population Distribution.—Arizona and California averaged 17 and 13 actual doves heard per route, respectively (Fig. 11). The other states in the Unit averaged < 10 birds per route.

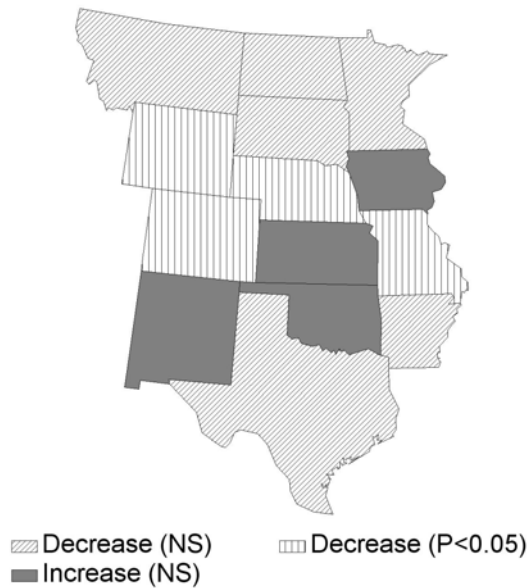


Fig. 10. Trends in mourning doves heard per route by state in the Central Management Unit, 1966-2005.

2004 to 2005 Population Changes.—The average number of doves heard per route decreased significantly between years (-14.7%; Table 1). The 2005 population index of 8.4 doves heard per route is essentially the same as the predicted count of 8.3 based on the long-term trend estimate (Fig. 12, Table 3).

The number of doves heard per route decreased significantly in California, Nevada, and Utah (Table 1). No significant differences were found in other states.

Population Trends: 10 and 40-year.—Unit-wide, no significant trend in numbers of doves heard was indicated over the most recent 10 years although a significant decline was apparent over 40 years (Table 1). Analyses of doves seen gave the same results (Table 2).

Trends by state are illustrated in Figs. 13 and 14, and Table 1. Oregon showed a significant increase over 10 years while Utah showed a decline. All states in the Unit except Idaho have a decline between 1966 and 2005.

Breeding Bird Survey Results

There has been considerable discussion about utilizing the North American Breeding Bird Survey (BBS) as a measure of mourning dove abundance. Consequently, we are including trend information in this report to



Fig. 11. Mean number of mourning doves heard per route by state in the Western Management Unit, 2004-2005.

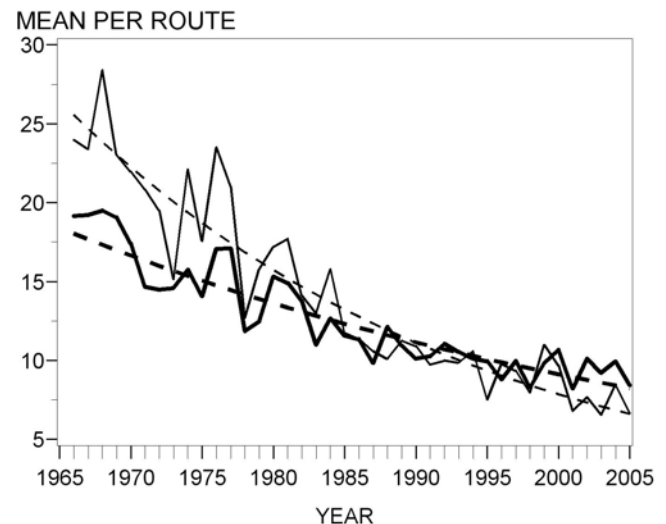


Fig. 12. Population indices and trends of breeding mourning doves in the Western Management Unit, 1966-2005. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

enable readers to compare BBS results with the Mourning Dove Call-count Survey (CCS) results from last year's mourning dove status report (Dolton and Rau 2004) for consistency in intervals of years. Sauer et al. (1994) discussed the differences in the methodology of the 2 surveys. The BBS is based on 24.5 mile routes that are surveyed in June. Each route consists of 50 stops or point count locations at 0.5 mile intervals. Data for doves heard and seen at stops are combined for BBS

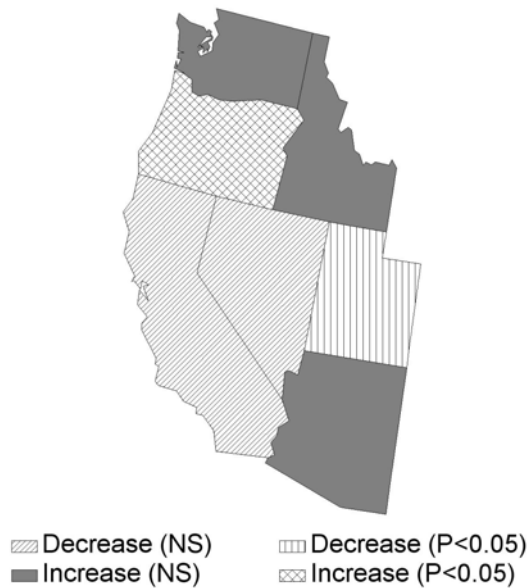


Fig. 13. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1996-2005.

analyses while those data are analyzed separately for the CCS. BBS data are not available in time for use in regulations development during the year of the survey. Trends calculated from BBS data for the 10-year period (1995-2004) and over 39 years (1966-2004) are presented in Table 4.

In general, trends indicated by the BBS tend to indicate fewer declines. The major differences occur in the Eastern Unit. This is likely due to the larger sample size of BBS survey routes and greater consistency of coverage by BBS routes in the Unit (Sauer et al. 1994), although additional analyses are needed to clarify some differences in results between surveys within states.

For the 10-year period, 1995-04, in the EMU as a whole, there was no trend indicated with the CCS ($P>0.10$) while the BBS showed a significant increase ($P<0.05$). For the combined hunting states in the Unit, the CCS indicated a significant decline ($P<0.05$) in doves heard compared to a significant increase ($P<0.05$) with the BBS. In the nonhunting states, the CCS showed no trend ($P>0.10$) while the BBS showed a significant increase ($P<0.05$). For both the CMU and WMU, both surveys showed no significant trend (CCS, $P>0.10$; BBS, $P<0.10$).

Over 39 years in the Eastern Unit, the CCS analyses

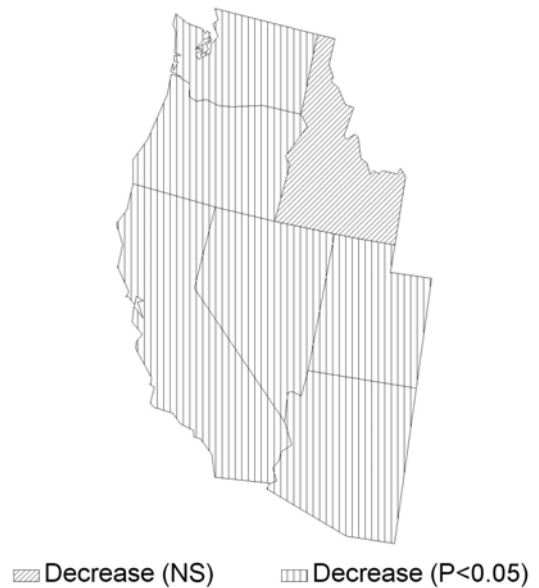


Fig. 14. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1966-2005.

indicated a significant decline ($P<0.05$). In contrast, the BBS showed a significant increase ($P<0.05$). For the combined hunting states of the EMU, the CCS showed a significant decline ($P<0.01$) compared with no trend ($P>0.10$) with the BBS. The nonhunting states of the EMU were different also. The CCS showed no trend ($P>0.10$), but BBS data indicated a significant increase ($P<0.05$). In the CMU, both the CCS and BBS indicated a significant decline ($P<0.05$). In the Western Management Unit, significant declines were also indicated by both surveys (CCS: $P<0.01$; BBS: $P<0.05$).

HARVEST ESTIMATES

State Surveys

In past years, a compilation of non-uniform, periodic state harvest surveys have been used to obtain rough estimates of the number of mourning doves killed and the number of dove hunters. Although those data are no longer used, a summary provided by Sadler (1993) is reviewed here for historical purposes. In general, mourning dove harvest in the EMU was relatively constant from 1966-87, with between 27.5 and 28.5 million birds taken. The latest estimate, a 1989 survey, indicated harvest had dropped to about 26.4 million birds shot by an estimated 1.3 million hunters. In the CMU,

although hunting pressure and harvest varied widely among states, dove harvest in the Unit generally increased between 1966-87 to an annual average of about 13.5 million birds. In 1989, almost 11 million doves were taken by about 747,000 hunters. Dove harvest in the WMU has declined significantly over the years following a decline in the breeding population. In the early 1970's, about 7.3 million doves were taken by an estimated 450,000 hunters. By 1989, the harvest had dropped to about 4 million birds shot by approximately 285,000 hunters.

In summary, it appears that the dove harvest throughout the United States is on the decrease. However, the mourning dove remains an extremely important game bird, as more doves are harvested than all other migratory game birds combined. A 1991 survey indicated that doves provided about 9.5 million days of hunting recreation for 1.9 million people (U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census 1993). A survey conducted in 1996 estimated that doves were hunted about 8.1 million days by 1.6 million people (U.S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census 1997).

Harvest Information Program (HIP)

Wildlife professionals have long recognized that reliable harvest estimates are needed to monitor the impact of hunting. To remedy problems associated with state surveys, the U.S. Fish and Wildlife Service and the state wildlife agencies initiated the national, cooperative Harvest Information Program in 1992. This program is designed to enable the Service to conduct nationwide surveys that provide reliable annual estimates of the harvest of mourning doves and other migratory game bird species. Under the Harvest Information Program, states provide the Service with the names and addresses of all licensed migratory bird hunters each year, and the Service conducts surveys to estimate the harvest in each state. All states except Hawaii are participating in the program.

Preliminary results of the mourning dove harvest survey for the 2003-04 hunting season are presented in Table 5 and preliminary results for the 2004-05 season are shown in Table 6. The total estimated harvest for the 2004-05 season by management unit and for the U.S. are as

follows: Eastern: 7,712,000 \pm 6%; Central: 9,807,700 \pm 8%; Western: 2,470,600 \pm 7%; and, U.S.: 19,990,200 \pm 5%. It is important to note that these estimates do not necessarily indicate that the harvest has declined from past years when harvest estimates were compiled from state surveys. And, they cannot be compared directly with the earlier estimates since they are based on a different sampling scheme. The reliability of these estimates depends primarily upon the quality of the sample frame provided by each participating state. If a state's sample frame does not include all migratory bird hunters in that state, the survey results underestimate hunter activity and harvest for the state.

The Division of Migratory Bird Management's Branch of Harvest Information is continuing to work with states to improve the accuracy and precision of the harvest estimates.

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Table 1. Trends (% change^a per year as determined by linear regression) in number of mourning doves heard along call-count survey routes, 1966-2005.

	2 year (2004-2005)				10 year (1996-2005)				40 year (1966-2005)			
	N	% Change ^b	90% CI		N	% Change ^b	90% CI		N	% Change ^b	90% CI	
EASTERN UNIT												
Hunt												
AL	26	4.4		-15.8 24.7	29	-0.3		-2.0 1.4	44	-0.8		-1.6 0.1
DE/MD	12	-17.2	*	-32.8 -1.6	14	1.6		-1.7 5.0	19	-1.6		-3.3 0.2
FL	21	-19.1	**	-31.3 -6.8	24	-4.2	***	-6.5 -2.0	29	-0.4		-1.3 0.5
GA	17	-7.2		-27.0 12.7	23	-0.5		-2.9 2.0	30	-1.0	**	-1.6 -0.3
IL	15	22.7	*	2.0 43.4	20	0.4		-1.8 2.5	22	0.2		-1.0 1.4
IN	14	23.3	**	6.0 40.7	15	2.2	**	0.5 4.0	18	-1.4	**	-2.4 -0.4
KY	14	7.1		-18.5 32.7	20	1.4	*	0.1 2.8	26	-0.4		-1.5 0.8
LA	16	15.8		-14.3 45.9	19	2.0		-0.9 4.9	23	1.3	*	0.1 2.4
MI	11	35.9	***	15.0 56.7	21	1.5		-3.0 6.1	23	0.4		-0.9 1.8
MS	19	9.7		-3.8 23.1	22	-3.8	**	-6.9 -0.8	31	-2.0	**	-3.6 -0.4
NC	20	-9.0		-24.4 6.4	21	0.7		-0.6 1.9	24	0.0		-0.8 0.8
OH	33	1.6		-11.3 14.4	37	1.0		-1.1 3.1	57	-1.1	***	-1.7 -0.5
PA	9	-8.4		-25.8 9.0	18	-0.9		-3.8 2.1	18	1.0		-0.4 2.4
SC	16	6.3		-11.9 24.4	21	-1.2		-3.8 1.5	27	-1.2	**	-2.0 -0.3
TN	18	8.8		-12.0 29.5	24	-0.6		-2.6 1.4	32	-1.6	**	-2.7 -0.6
VA	22	19.5	*	0.8 38.3	33	-0.9		-3.1 1.3	33	-2.0	*	-3.9 -0.1
WI	11	7.3		-13.1 27.6	21	6.0	***	4.0 8.0	23	0.8		-0.5 2.1
WV	10	-13.3		-35.8 9.1	10	-0.3		-4.7 4.1	11	1.4		-0.4 3.1
Subunit	304	6.9	**	1.7 12.0	392	0.0		-0.7 0.7	490	-0.6	***	-0.9 -0.2
Nonhunt												
N.England ^c	26	-10.1		-24.8 4.6	41	0.9		-1.2 3.1	76	1.3	***	0.6 2.0
NJ	11	3.2		-41.7 48.1	11	-3.2		-7.7 1.4	20	-1.9		-4.6 0.8
NY	7	-6.7	**	-12.2 -1.2	19	4.3		-0.2 8.8	22	2.6		-0.6 5.7
Subunit	44	-8.9		-18.1 0.2	71	1.5		-0.3 3.2	118	1.4	**	0.4 2.4
Unit	348	5.8	**	1.0 10.5	463	0.1		-0.6 0.7	608	-0.5	**	-0.8 -0.1
CENTRAL UNIT												
AR	14	15.6		-12.3 43.5	18	-2.4		-4.8 0.1	19	-0.8		-2.1 0.4
CO	12	-11.6		-48.9 25.8	16	-3.5		-9.0 2.1	21	-0.9	**	-1.6 -0.2
IA	14	-7.1		-20.4 6.2	17	-1.3		-4.0 1.5	19	0.0		-0.7 0.8
KS	20	27.7	**	9.6 45.7	29	2.0		-1.4 5.4	35	0.1		-0.7 0.9
MN	7	-10.4		-32.8 12.0	12	-4.8	*	-9.2 -0.3	13	-1.7	*	-3.1 -0.2
MO	15	17.3		-7.6 42.2	20	-3.0	**	-5.2 -0.8	28	-2.0	**	-3.4 -0.6
MT	10	-31.6	***	-37.6 -25.5	17	1.1		-1.8 4.0	29	-1.9	*	-3.6 -0.1
NE	21	-12.8		-35.2 9.6	24	-2.0	*	-3.7 -0.2	28	-1.0	**	-1.7 -0.4
NM	19	34.9	**	11.3 58.6	27	1.8		-2.9 6.6	31	0.7		-0.2 1.7
ND	21	46.7	**	16.2 77.3	27	-0.2		-2.0 1.6	30	-0.2		-1.5 1.1
OK	16	-8.3		-17.6 1.1	16	3.0	**	1.1 4.9	25	0.8		-2.7 4.3
SD	13	-3.5		-27.3 20.4	20	-0.7		-4.7 3.4	29	-1.1		-2.5 0.3
TX	110	11.4	*	0.5 22.3	142	-1.4	*	-2.6 -0.2	208	-0.6		-1.3 0.1
WY	9	-29.0	**	-49.1 -8.9	17	-3.7	*	-7.3 -0.1	23	-3.4	**	-5.7 -1.0
Unit	301	6.4		-0.7 13.4	402	-1.0	**	-1.8 -0.2	538	-0.6	***	-1.0 -0.2
WESTERN UNIT												
AZ	30	4.7		-12.7 22.1	55	2.7	*	0.0 5.4	70	-1.0	**	-1.7 -0.3
CA	55	-21.6	***	-30.8 -12.5	61	-0.6		-2.4 1.1	84	-2.5	***	-3.5 -1.5
ID	10	-26.1		-66.5 14.3	23	2.8		-0.9 6.4	28	-2.0		-4.1 0.1
NV	13	-37.0	***	-56.0 -17.9	20	-2.9		-6.3 0.6	31	-3.9	***	-5.9 -2.0
OR	11	-16.5		-48.6 15.6	19	4.5	***	2.2 6.8	25	-2.2	***	-3.5 -0.9
UT	11	-17.9	**	-32.0 -3.9	16	-4.8	**	-8.4 -1.3	20	-4.0	**	-6.7 -1.2
WA	15	20.3		-6.6 47.2	22	5.4		-0.2 11.0	27	-2.5	**	-4.6 -0.4
Unit	145	-14.7	***	-22.4 -7.0	216	0.5		-1.0 1.9	285	-2.0	***	-2.6 -1.4

^a Mean of route trends weighted by land area and population density. The estimated count in the next year is $(\%/100+1)$ times the count in the current year where % is the annual change. Note: Extrapolating the estimated trend statistic (% change per year) over time (e.g., 40 years) may exaggerate the total change over the period.

^b * $P<0.1$; ** $P<0.05$; *** $P<0.01$. For purposes of this report, statistical significance was defined as $P<0.05$, except for the 2-year comparison where $P<0.10$ was used because of the low power of the test.

^c New England consists of CT, ME, MA, NH, RI, and VT.

Table 2. Trends (% change^a per year as determined by linear regression) in number of mourning doves seen along call-count survey routes, 1966-2005.

	10 year (1996-2005)					40 year (1966-2005)				
	N	% Change ^b		90% CI		N	% Change ^b		90% CI	
EASTERN UNIT										
Hunt										
AL	29	1.9		-0.9	4.8	44	-1.1	*	-2.1	-0.1
DE/MD	14	2.4	**	0.5	4.3	19	0.7		-0.7	2.2
FL	25	3.2		-0.3	6.7	29	4.1	***	2.8	5.5
GA	23	1.6		-2.2	5.4	30	0.4		-0.8	1.6
IL	20	5.5	**	1.4	9.5	22	-0.7		-2.6	1.2
IN	15	6.7	***	3.1	10.3	18	-1.8		-4.8	1.2
KY	20	2.1	**	0.5	3.7	24	1.4	*	0.0	2.8
LA	18	4.8	***	2.9	6.8	23	2.3	***	1.3	3.3
MI	20	5.1	***	2.7	7.5	23	2.0	***	0.8	3.1
MS	21	-0.5		-4.1	3.2	31	-1.1		-3.3	1.0
NC	21	3.3	*	0.5	6.1	24	-0.1		-1.1	0.9
OH	37	2.2	*	0.0	4.3	57	1.0		-0.5	2.5
PA	18	-0.2		-3.2	2.7	18	0.8		-1.0	2.6
SC	21	1.9		-1.5	5.3	27	1.2	*	0.2	2.3
TN	24	0.9		-1.4	3.1	32	-0.6		-1.8	0.5
VA	33	0.3		-1.9	2.6	33	-1.4		-3.8	1.0
WI	20	3.9	*	0.5	7.2	23	2.7	***	1.6	3.9
WV	10	3.2		-3.2	9.5	11	3.5	***	1.8	5.2
Subunit	389	3.0	***	2.2	3.9	488	0.4		-0.3	1.0
Nonhunt										
N.England ^c	41	0.2		-1.8	2.2	73	1.4		-0.5	3.3
NJ	11	-2.3		-7.7	3.0	20	-0.9		-2.3	0.4
NY	18	4.2		-1.2	9.5	21	3.0	*	0.3	5.8
Subunit	70	1.0		-1.0	2.9	114	1.7	**	0.4	3.1
Unit	459	2.9	***	2.0	3.8	602	0.4		-0.2	1.1
CENTRAL UNIT										
AR	18	3.6		-1.3	8.4	19	-1.3	**	-2.2	-0.4
CO	16	-2.2		-7.1	2.6	20	-0.2		-1.4	1.0
IA	17	2.8	**	0.7	4.9	19	0.0		-0.9	1.0
KS	29	1.2		-2.4	4.8	35	-0.5		-1.2	0.3
MN	12	-4.9		-11.1	1.3	14	-1.1		-2.9	0.6
MO	20	-0.3		-2.7	2.2	28	-3.1	***	-4.7	-1.4
MT	19	0.1		-5.7	5.9	28	0.5		-0.9	1.9
NE	24	0.2		-1.7	2.1	28	-0.6		-2.0	0.8
NM	27	3.7	*	0.3	7.1	31	0.0		-2.7	2.7
ND	27	-2.0		-4.5	0.5	30	0.0		-1.3	1.4
OK	16	3.5	***	1.3	5.7	25	0.3		-1.0	1.5
SD	20	2.3		-1.1	5.7	29	0.1		-1.8	1.9
TX	141	0.1		-1.6	1.7	209	0.8	**	0.3	1.3
WY	14	-9.0	***	-14.5	-3.4	21	-4.6	*	-9.0	-0.1
Unit	400	0.4		-0.7	1.4	536	0.1		-0.4	0.5
WESTERN UNIT										
AZ	55	2.5		-2.8	7.8	71	-4.4	***	-6.3	-2.5
CA	57	-0.5		-2.9	2.0	83	-2.5	***	-3.6	-1.4
ID	22	-4.9		-14.3	4.5	28	-3.6	*	-6.9	-0.4
NV	19	-8.1	*	-15.0	-1.3	33	-2.8		-5.6	0.0
OR	18	-8.5	**	-15.4	-1.5	23	-4.7	***	-7.0	-2.4
UT	14	-5.5	*	-10.7	-0.4	19	-6.1	**	-10.1	-2.0
WA	22	6.3		-0.6	13.3	24	0.7		-1.8	3.2
Unit	207	-1.8		-4.5	0.9	281	-3.4	***	-4.3	-2.5

^a Mean of route trends weighted by land area and population density. The estimated count in the next year is $(\%/100+1)$ times the count in the current year where % is the annual change. Note: Extrapolating the estimated trend statistic (% change per year) over time (e.g., 40 years) may exaggerate the total change over the period.

^b * $P < 0.1$; ** $P < 0.05$; *** $P < 0.01$. For purposes of this report, statistical significance was defined as $P < 0.05$, except for the 2-year comparison where $P < 0.10$ was used because of the low power of the test.

^c New England consists of CT, ME, MA, NH, RI, and VT.

Table 3. Breeding population indices^a based on mourning doves heard along Call-count routes, 1966-2005.

Management	year									
unit/state	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
EASTERN UNIT										
Hunt										
AL	26.0	23.2	20.9	21.2	21.4	17.6	25.2	22.0	16.7	21.3
DE/MD	16.4	20.1	14.1	14.9	18.5	15.8	17.2	17.0	18.0	12.9
FL	12.1	12.3	10.3	10.8	13.4	11.4	11.9	12.1	13.9	14.2
GA	29.8	27.9	23.9	25.6	32.4	25.5	24.3	26.7	27.7	30.1
IL	23.3	20.1	23.9	20.7	23.8	21.7	22.3	21.8	18.5	25.5
IN	37.1	34.2	33.6	32.6	31.5	42.5	37.2	33.3	31.7	33.4
KY	23.7	21.5	20.9	21.9	26.4	23.6	19.9	23.0	26.8	20.1
LA	10.1	10.4	9.7	11.3	7.0	10.2	11.2	9.0	10.2	10.9
MI	14.0	15.1	9.8	10.1	9.4	15.0	14.9	12.4	11.5	12.1
MS	42.1	36.2	30.6	28.1	31.1	31.6	35.2	31.4	25.1	26.4
NC	35.0	28.3	29.9	42.6	49.2	28.2	23.3	44.3	25.3	14.3
OH	24.6	23.2	21.0	23.9	23.6	24.5	25.5	20.3	24.6	37.6
PA	8.6	9.4	8.7	8.4	5.8	6.2	8.7	5.9	8.4	6.3
SC	33.4	36.5	37.1	35.8	33.7	29.5	26.2	29.9	27.9	27.6
TN	32.7	23.8	24.5	24.1	32.7	23.1	29.2	22.2	23.7	22.6
VA	25.8	21.5	24.4	21.6	27.6	22.2	13.3	15.7	21.4	24.0
WI	10.1	13.3	13.3	10.2	11.0	15.2	16.0	11.6	11.9	14.4
WV	6.4	5.4	5.5	6.0	5.4	4.9	6.4	3.9	4.4	3.1
Subunit	21.9	20.9	19.4	19.4	20.0	19.7	20.3	18.7	18.8	19.3
Nonhunt										
N.England ^b	6.7	6.5	6.0	5.4	5.8	6.3	6.5	6.9	5.7	5.8
NJ	19.6	16.7	20.7	19.1	25.7	24.4	25.6	22.6	22.4	16.0
NY	5.5	5.7	5.5	5.8	7.0	7.7	6.8	6.9	7.1	11.4
Subunit	6.7	6.7	6.4	6.2	7.2	7.9	7.5	7.7	7.3	9.0
Unit	20.1	19.2	17.9	17.8	18.6	18.5	18.9	17.6	17.5	18.3
CENTRAL UNIT										
AR	19.7	20.5	19.7	18.9	20.4	20.5	19.2	21.6	19.9	19.1
CO	23.5	23.1	21.1	28.7	28.7	20.8	26.8	16.5	26.2	19.0
IA	33.3	29.9	32.4	29.0	21.0	25.8	34.4	32.4	25.8	23.9
KS	44.2	47.3	49.2	49.9	45.9	46.9	52.3	46.6	46.2	44.3
MN	29.9	24.6	25.8	23.0	18.6	24.0	26.3	21.7	25.5	27.1
MO	38.6	36.4	45.7	27.7	38.2	32.1	43.6	32.8	28.0	33.0
MT	28.0	25.9	20.2	22.5	18.4	25.0	19.2	14.7	16.9	23.1
NE	47.2	41.5	52.8	51.6	49.8	47.2	45.2	43.2	44.8	42.1
NM	14.8	10.5	15.0	11.5	11.2	10.8	12.6	8.5	10.7	13.1
ND	40.5	38.8	53.0	44.0	39.0	40.1	41.5	45.5	44.1	32.0
OK	17.6	21.8	25.7	24.8	19.6	15.5	25.6	24.2	25.6	23.2
SD	57.9	36.2	49.5	41.8	49.4	42.9	42.7	44.8	53.4	45.1
TX	27.0	22.8	22.4	20.3	21.4	20.8	27.7	22.1	23.5	21.2
WY	21.8	24.7	12.9	20.2	18.8	14.0	15.2	16.0	18.8	17.3
Unit	29.5	26.8	27.6	26.5	25.7	25.2	28.5	24.1	26.4	25.8
WESTERN UNIT										
AZ	29.5	28.3	25.4	30.5	30.4	20.7	23.1	28.1	24.3	26.7
CA	27.7	25.8	24.3	23.8	23.0	18.3	21.3	20.1	21.7	18.1
ID	15.6	16.1	14.6	15.6	14.5	11.6	11.1	13.8	11.8	8.2
NV	10.4	9.6	22.9	16.1	11.2	7.0	9.2	6.8	8.7	6.0
OR	15.8	11.0	11.3	12.4	8.8	7.9	7.0	8.8	11.3	9.8
UT	23.1	36.1	18.1	17.3	20.1	27.7	16.7	13.7	15.8	17.6
WA	12.4	16.8	15.5	13.1	14.1	15.0	12.0	11.2	12.9	13.9
Unit	19.2	19.2	19.5	19.1	17.4	14.7	14.5	14.6	15.8	14.1

^aAnnual indices are the predicted value from the trend analysis plus the deviation from the expected value in a year. Large but nonsignificant changes due to small sample sizes produce exaggerated indices over the 40-year period.

^b New England consists of CT, ME, MA, NH, RI, and VT.

Table 3. Continued.

Management unit/state	year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
EASTERN UNIT										
Hunt										
AL	20.4	22.5	24.7	23.7	23.7	22.6	23.0	23.1	19.3	24.6
DE/MD	15.6	14.4	15.2	14.7	13.9	14.3	13.9	9.8	11.2	12.3
FL	13.3	14.6	11.5	12.1	10.2	8.8	10.4	12.1	8.3	10.6
GA	23.7	24.6	27.1	23.7	24.1	26.7	28.7	25.6	20.8	26.6
IL	25.1	26.8	20.5	17.8	18.2	20.5	25.0	25.7	20.8	17.9
IN	33.7	37.6	20.4	21.6	27.4	31.6	22.4	19.3	21.0	18.4
KY	22.8	22.9	24.5	16.8	16.4	27.8	23.9	13.4	21.6	22.5
LA	10.8	8.9	10.6	9.1	12.2	10.7	13.3	12.3	11.7	10.5
MI	13.1	11.4	12.3	8.4	13.3	14.1	11.4	10.1	10.8	11.8
MS	26.8	27.6	31.0	26.4	25.0	25.1	31.6	26.5	19.4	25.7
NC	17.4	46.4	24.7	29.4	28.5	28.0	23.5	27.7	31.1	21.6
OH	27.4	26.2	13.8	13.5	16.2	19.6	18.6	19.8	18.6	17.3
PA	6.0	5.5	5.9	6.3	7.8	9.5	9.0	9.1	8.2	9.0
SC	27.2	23.2	30.6	26.0	32.7	31.7	32.8	31.2	28.3	28.4
TN	22.3	24.4	30.2	20.7	22.4	18.9	25.3	19.6	16.8	21.6
VA	23.0	30.7	22.7	20.0	19.5	16.8	18.5	18.4	18.0	16.8
WI	14.5	18.0	8.8	11.3	14.9	19.1	11.5	13.1	10.8	10.8
WV	5.9	5.6	6.0	6.6	8.1	6.5	6.2	5.9	5.2	6.7
Subunit	19.2	20.5	18.1	16.6	18.5	19.3	19.0	17.9	16.3	17.3
Nonhunt										
N.England ^b	5.5	6.9	7.2	6.0	7.4	9.0	7.4	7.8	6.7	7.4
NJ	20.2	22.1	17.5	18.7	17.4	14.3	16.5	19.7	12.4	12.6
NY	7.7	7.9	7.8	6.5	10.2	9.7	9.9	9.8	9.2	8.6
Subunit	7.3	8.2	8.2	6.9	9.4	10.0	9.3	9.6	8.3	8.5
Unit	17.8	19.1	17.0	15.5	17.6	18.4	18.0	17.2	15.5	16.3
CENTRAL UNIT										
AR	23.2	18.9	13.3	10.8	17.9	19.6	22.8	17.1	12.2	12.0
CO	27.0	25.0	27.6	22.8	26.3	29.6	28.7	15.7	19.5	23.2
IA	29.7	23.0	25.9	22.1	29.8	32.7	23.8	16.8	24.8	27.4
KS	48.8	46.3	36.4	53.3	58.2	55.6	53.1	59.9	47.5	61.6
MN	25.2	28.0	26.8	27.6	30.6	26.9	23.7	20.6	17.7	19.3
MO	29.3	33.9	21.7	20.7	32.4	27.4	24.1	23.3	22.3	21.3
MT	16.7	20.4	19.6	19.6	17.9	17.0	20.9	17.5	13.2	17.9
NE	47.5	48.0	39.4	42.1	53.6	50.9	49.6	45.1	43.0	44.1
NM	12.9	11.5	11.6	7.9	12.8	12.8	9.9	13.4	14.3	12.3
ND	51.5	42.4	45.2	42.2	48.5	48.1	45.2	43.0	33.7	44.2
OK	24.5	31.9	24.6	24.2	25.2	25.2	26.4	27.0	20.6	20.2
SD	49.6	43.1	45.0	43.7	43.7	39.1	46.5	39.5	43.3	40.4
TX	20.7	19.8	20.6	25.4	24.3	22.0	21.2	19.7	19.3	19.9
WY	16.6	13.7	16.6	13.1	11.7	12.9	15.6	11.4	10.3	11.6
Unit	26.8	26.1	25.1	24.7	27.9	27.1	26.7	23.9	22.4	24.4
WESTERN UNIT										
AZ	27.3	24.7	24.8	24.2	21.7	24.5	28.0	21.8	26.7	21.5
CA	21.9	17.1	15.7	12.1	20.4	16.7	20.5	13.1	17.9	12.6
ID	15.1	18.5	10.3	9.9	10.5	11.6	12.0	9.3	11.0	10.1
NV	9.1	9.1	5.8	8.2	11.4	8.5	5.0	4.5	4.4	5.5
OR	9.3	11.0	6.1	6.3	9.6	7.9	7.4	6.0	6.6	8.3
UT	19.4	22.7	10.0	12.3	14.8	19.7	11.8	11.9	13.3	8.7
WA	13.4	14.4	9.9	12.8	9.0	10.9	10.0	8.6	7.7	9.3
Unit	17.1	17.1	11.9	12.5	15.3	14.9	13.8	11.0	12.7	11.6

^aAnnual indices are the predicted value from the trend analysis plus the deviation from the expected value in a year.

Large but nonsignificant changes due to small sample sizes produce exaggerated indices over the 40-year period.

^bNew England consists of CT, ME, MA, NH, RI, and VT.

Table 3. Continued.

Management	year									
unit/state	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
EASTERN UNIT										
Hunt										
AL	22.4	19.9	22.0	18.8	17.6	16.4	18.8	20.5	21.2	22.2
DE/MD	14.7	12.8	11.9	16.5	8.0	12.3	15.7	10.6	12.9	11.6
FL	12.4	11.1	13.4	12.1	10.9	11.7	11.9	10.6	10.0	11.6
GA	23.8	24.9	25.1	25.4	26.2	21.8	30.7	19.0	22.0	26.2
IL	24.7	24.1	27.3	26.6	26.1	26.4	27.3	23.7	26.4	27.2
IN	24.5	24.7	29.7	25.2	27.4	27.7	24.4	25.7	30.6	24.8
KY	20.2	24.8	19.9	27.4	22.8	21.7	17.3	22.2	21.5	21.1
LA	9.7	13.7	10.2	15.8	11.2	11.5	15.4	11.7	12.8	14.5
MI	15.2	12.4	15.0	18.7	14.5	11.5	13.4	12.3	11.7	13.0
MS	25.3	22.4	26.5	24.8	21.0	17.2	22.3	24.4	20.5	18.7
NC	30.3	29.4	27.0	31.7	28.8	24.4	23.8	24.7	24.9	27.1
OH	16.9	18.5	21.3	19.8	18.3	19.5	20.4	17.3	19.2	17.5
PA	9.6	10.9	7.3	9.4	10.4	9.6	10.6	11.8	11.1	10.7
SC	24.2	35.2	27.8	26.7	28.9	23.3	22.9	26.9	24.0	19.3
TN	16.3	20.1	19.7	17.8	15.7	18.9	18.4	16.2	19.9	18.3
VA	13.6	14.7	15.5	15.3	12.4	13.7	12.0	13.5	13.3	14.3
WI	11.6	7.7	17.9	18.2	14.7	12.9	19.8	19.0	15.8	13.4
WV	6.3	6.6	7.3	8.2	10.4	8.9	7.1	8.3	9.1	9.4
Subunit	17.8	17.9	19.2	20.1	18.2	17.2	18.8	17.9	18.1	18.2
Nonhunt										
N.England ^b	8.0	7.6	7.9	7.4	8.3	9.0	9.5	10.1	9.0	11.3
NJ	14.8	13.5	13.1	16.1	13.1	15.5	10.0	16.1	13.9	10.4
NY	7.2	9.8	7.7	12.2	10.8	13.6	11.6	10.2	10.5	11.8
Subunit	8.2	9.1	8.3	10.1	9.9	11.5	10.7	10.8	10.2	11.6
Unit	16.6	16.8	17.8	18.9	17.2	16.6	17.9	17.1	17.1	17.4
CENTRAL UNIT										
AR	13.0	12.2	13.5	18.9	14.7	13.3	16.0	14.7	17.5	16.2
CO	23.4	24.1	25.9	29.4	26.5	19.6	13.3	12.8	22.8	19.0
IA	24.7	23.6	30.6	29.1	32.0	24.5	32.4	24.2	25.3	26.7
KS	42.5	46.2	54.0	48.4	42.1	59.1	57.5	39.0	52.3	62.6
MN	17.5	22.7	22.7	17.9	17.9	18.1	21.1	15.3	18.9	18.7
MO	22.1	24.8	24.9	24.5	19.9	21.7	22.8	22.1	26.5	23.1
MT	18.1	17.2	16.8	18.3	20.5	13.5	14.3	10.4	9.7	12.2
NE	36.8	36.3	37.2	40.4	39.8	41.0	38.5	40.5	37.6	41.0
NM	14.7	17.8	13.3	14.8	16.3	15.0	9.9	11.0	13.8	12.4
ND	40.5	46.3	43.7	45.4	43.9	48.4	52.0	45.0	39.0	40.8
OK	22.8	25.6	22.4	17.2	23.7	23.1	26.4	22.8	29.8	22.6
SD	37.4	33.0	39.0	41.8	43.0	44.7	36.0	32.1	34.8	34.1
TX	21.4	21.1	21.7	16.6	17.6	24.4	22.4	20.4	22.3	17.0
WY	14.3	11.5	7.5	8.8	8.8	9.4	9.6	7.0	9.2	6.7
Unit	24.6	25.3	24.7	24.2	24.5	24.8	23.6	20.6	23.9	22.3
WESTERN UNIT										
AZ	25.5	17.2	19.4	23.8	18.3	23.2	24.9	25.9	22.8	21.4
CA	14.6	11.2	15.0	11.1	10.4	10.7	11.8	14.3	11.6	11.2
ID	7.2	7.4	10.3	9.4	10.9	9.6	9.1	7.7	7.8	7.1
NV	3.6	4.2	5.7	4.9	3.7	4.5	3.8	3.2	2.9	4.8
OR	6.7	6.1	8.0	6.2	7.2	4.4	6.9	5.7	6.8	5.6
UT	12.1	10.5	10.1	11.3	9.2	8.7	11.0	9.2	9.6	6.2
WA	11.0	8.7	8.7	7.5	7.8	9.8	8.6	7.4	7.6	8.4
Unit	11.4	9.8	12.1	11.0	10.1	10.3	11.1	10.6	10.1	10.0

^aAnnual indices are the predicted value from the trend analysis plus the deviation from the expected value in a year.

Large but nonsignificant changes due to small sample sizes produce exaggerated indices over the 40-year period.

^bNew England consists of CT, ME, MA, NH, RI, and VT.

Table 3. Continued.

Management	year									
unit/state	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
EASTERN UNIT										
Hunt										
AL	17.3	16.2	18.0	17.3	18.4	17.6	20.6	16.0	17.9	17.8
DE/MD	10.9	9.0	12.5	8.9	8.5	8.5	7.2	11.3	11.6	11.0
FL	10.8	10.0	12.4	12.9	12.5	9.2	9.9	10.5	10.2	11.2
GA	22.0	19.0	18.2	18.4	16.2	22.6	12.4	19.8	18.4	20.6
IL	21.5	21.8	21.9	20.2	26.3	22.1	23.6	25.6	20.9	24.6
IN	21.3	21.0	21.2	22.0	23.7	20.8	18.9	18.8	20.6	23.7
KY	18.0	16.8	22.1	22.7	23.3	19.7	23.1	21.7	18.8	18.4
LA	11.8	12.1	13.7	14.6	17.2	18.0	14.2	16.5	13.7	16.0
MI	13.4	13.0	14.2	15.8	17.5	14.5	14.5	15.9	12.8	15.3
MS	17.5	16.8	17.2	20.8	18.0	17.6	13.8	15.7	12.6	14.6
NC	27.6	30.3	29.7	30.4	36.1	40.2	34.0	32.8	29.0	29.0
OH	14.1	14.0	16.4	17.1	18.2	14.9	17.0	16.4	15.4	15.3
PA	10.4	9.7	11.5	9.5	11.2	10.7	10.7	9.8	10.1	10.5
SC	24.2	23.1	26.1	24.5	23.7	24.0	22.3	23.4	21.7	21.5
TN	15.7	16.7	16.0	16.3	17.9	14.2	15.0	14.7	13.6	13.6
VA	11.5	14.5	13.7	14.0	15.1	12.0	14.0	10.9	12.1	13.0
WI	12.0	12.6	10.1	19.4	17.0	16.5	14.0	19.4	19.9	17.7
WV	4.7	9.8	8.2	9.6	9.2	6.3	9.0	5.3	9.9	8.8
Subunit	15.9	16.0	16.9	17.9	18.6	17.0	16.2	16.9	16.1	17.1
Nonhunt										
N.England ^b	7.8	7.8	8.5	9.9	10.5	8.7	11.7	9.2	9.3	7.5
NJ	13.5	7.2	11.8	9.8	13.0	6.9	11.4	9.5	9.6	8.6
NY	11.1	12.0	10.5	14.0	16.2	13.5	13.4	14.2	13.7	14.2
Subunit	9.7	9.6	9.8	11.9	13.4	10.7	12.7	11.5	11.3	10.3
Unit	15.2	15.2	16.0	17.2	18.0	16.2	15.9	16.2	15.6	16.1
CENTRAL UNIT										
AR	16.5	16.7	17.0	15.4	15.1	15.0	11.3	16.0	13.7	13.6
CO	14.2	19.3	20.1	22.1	22.2	14.1	17.4	17.1	20.6	15.4
IA	34.5	28.2	31.1	27.6	24.5	23.8	24.9	33.5	32.2	29.9
KS	33.2	59.4	55.4	67.9	51.3	32.1	45.7	53.9	45.3	58.4
MN	17.8	18.8	17.6	15.8	16.5	13.0	18.3	9.5	10.7	14.7
MO	22.8	22.4	20.2	18.6	19.2	16.4	18.0	20.3	15.5	18.3
MT	12.4	11.4	14.0	12.9	14.2	10.3	12.4	12.0	12.6	11.5
NE	34.1	31.5	39.9	36.4	36.4	30.6	28.7	38.8	31.7	33.2
NM	10.8	14.3	12.0	14.0	16.0	16.4	11.2	15.7	13.6	15.8
ND	42.7	37.9	34.8	46.6	46.3	36.9	31.1	45.7	30.5	48.6
OK	24.0	23.1	32.3	30.2	25.4	26.4	25.2	32.8	34.9	32.9
SD	34.9	30.5	32.4	34.1	36.6	32.6	34.8	33.5	32.8	30.9
TX	14.5	21.8	22.1	21.8	19.1	19.4	18.9	19.4	15.8	18.5
WY	7.8	7.6	8.1	6.0	8.5	5.2	7.0	5.5	6.2	4.7
Unit	20.5	23.1	24.1	23.9	23.9	20.0	21.0	22.4	20.7	21.9
WESTERN UNIT										
AZ	12.6	19.3	22.2	23.9	24.7	18.3	18.3	16.1	19.2	22.4
CA	11.5	10.1	10.6	10.9	10.1	9.5	11.9	10.8	11.6	8.2
ID	6.8	9.9	5.6	7.7	7.2	5.8	9.5	7.0	8.7	6.8
NV	4.4	4.0	3.5	4.2	3.4	2.9	3.3	3.2	3.3	2.6
OR	5.2	5.3	4.1	4.1	6.8	4.6	5.8	6.2	5.5	5.0
UT	7.0	8.7	5.0	8.0	12.7	5.5	7.8	6.3	7.4	5.1
WA	5.6	6.9	4.8	6.5	7.4	7.0	7.2	7.8	6.6	7.3
Unit	8.8	10.0	8.3	9.8	10.7	8.2	10.1	9.2	9.9	8.4

^aAnnual indices are the predicted value from the trend analysis plus the deviation from the expected value in a year.

Large but nonsignificant changes due to small sample sizes produce exaggerated indices over the 40-year period.

^bNew England consists of CT, ME, MA, NH, RI, and VT.

Table 4. Trends (% change^a per year as determined by linear regression) in number of mourning doves heard and seen along Breeding Bird Survey routes, 1966-2004.

	10 year (1995-04)					39 year (1966-04)				
	N	% Change ^b		90% CI		N	% Change ^b		90%CI	
EASTERN UNIT										
Hunt										
AL	92	-2.0	**	-3.4	-0.7	99	-1.4	**	-2.2	-0.6
DE/MD	67	-0.7		-1.9	0.6	78	0.3		-0.3	1.0
FL	73	-0.1		-2.7	2.6	85	2.3	**	1.4	3.2
GA	56	-0.1		-1.6	1.4	67	-1.4	*	-2.5	-0.3
IL	98	2.8	**	1.0	4.5	98	0.9	*	0.0	1.8
IN	55	2.1	*	0.3	3.8	59	0.1		-0.4	0.6
KY	35	3.6	**	1.8	5.4	49	0.6		-0.2	1.4
LA	50	4.2	**	1.6	6.7	67	2.4	**	0.9	3.8
MS	24	-3.4	**	-5.7	-1.0	34	-1.6	**	-2.6	-0.6
NC	71	-0.4		-2.4	1.6	82	-0.2		-1.2	0.8
OH	63	2.0	**	0.7	3.4	78	0.7	*	0.0	1.4
PA	100	0.5		-0.6	1.6	121	1.8	**	1.1	2.6
SC	31	2.0		-0.5	4.5	38	0.0		-1.0	0.9
TN	41	1.2		-0.8	3.3	46	-0.6		-1.6	0.4
VA	49	-1.4		-2.8	0.0	55	-0.6		-1.3	0.1
WV	49	4.0	**	2.3	5.7	56	5.3	**	4.2	6.5
WI	91	3.8	**	2.5	5.2	93	1.3	**	0.4	2.3
Subunit	1045	0.9	**	0.3	1.5	1205	0.2		-0.2	0.5
Nonhunt										
MI	59	2.9	**	1.2	4.6	79	0.6		-0.1	1.2
N.England ^c	131	0.8		-0.2	1.9	154	3.2	**	2.3	4.1
NJ	27	-0.6		-4.3	3.2	37	0.3		-1.1	1.8
NY	96	2.2	**	0.9	3.5	115	2.6	**	2.1	3.1
Subunit	313	1.8	**	1.0	2.6	385	1.9	**	1.3	2.4
Unit	1358	1.1	**	0.5	1.6	1590	0.4	**	0.1	0.7
CENTRAL UNIT										
AR	32	2.4	*	0.4	4.4	35	0.8		-0.8	2.3
CO	122	1.6		-0.3	3.6	131	1.0		-0.3	2.3
IA	35	4.1	*	0.4	7.9	38	-0.5		-1.7	0.6
KS	60	0.3		-1.3	1.9	61	0.0		-1.0	0.9
MN	59	2.4	*	0.4	4.4	68	-1.1		-2.3	0.1
MO	53	0.3		-1.6	2.2	64	-1.9	**	-2.9	-1.0
MT	46	0.0		-3.3	3.3	53	-1.0		-2.1	0.1
NE	43	-0.3		-2.2	1.5	47	-0.9	**	-1.5	-0.3
NM	63	1.6		-2.1	5.2	74	0.0		-1.7	1.6
ND	44	0.5		-1.8	2.8	46	0.8	*	0.1	1.5
OK	53	0.4		-1.8	2.7	60	-1.5	**	-2.2	-0.7
SD	43	-0.1		-1.6	1.4	51	0.5		-0.4	1.4
TX	169	0.1		-1.3	1.5	196	-1.4	**	-2.0	-0.8
WY	71	0.8		-1.4	3.0	101	0.1		-1.4	1.7
Unit	893	0.7	*	0.0	1.3	1025	-0.5	**	-0.8	-0.2
WESTERN UNIT										
AZ	48	0.0		-2.2	2.1	72	-1.1		-2.9	0.8
CA	166	2.4	**	0.9	3.9	217	-1.0	*	-1.9	-0.1
ID	40	5.7	**	2.4	9.1	43	-0.6		-1.9	0.6
NV	22	2.8		-1.9	7.6	33	2.5	*	0.4	4.5
OR	78	0.2		-3.9	4.3	96	-2.3	**	-3.6	-1.1
UT	85	-1.7		-4.8	1.4	91	-2.2	**	-3.4	-1.0
WA	59	-0.1		-2.4	2.2	66	0.0		-1.6	1.6
Unit	498	1.4	*	0.3	2.4	618	-1.0	**	-1.7	-0.4

^aMean of route trends weighted by land area and population density. The estimated count in the next year is $(\%/100+1)$ times the count in the current year where % is the annual change. Note: Extrapolating the estimated trend statistic (% change per year) over time (e.g., 39 years) may exaggerate the total change over the period.

^b* $P<0.1$; ** $P<0.05$; *** $P<0.01$. For purposes of this report, statistical significance was defined as $P<0.05$, except for the 2-year comparison where $P<0.10$ was used because of the low power of the test.

^cNew England consists of CT, ME, MA, NH, RI, and VT.

Table 5. Preliminary estimates of the number of hunters, days hunted, and total bag from Harvest Information Program surveys for the 2003-04 season.

Management Unit	Hunters		Days hunted		Birds bagged	
EASTERN						
AL	49,000	± 10% ¹	138,900	± 15%	977,400	± 17%
DE	2,200	± 24%	6,600	± 25%	38,800	± 25%
FL	18,100	± 16%	65,200	± 22%	333,300	± 28%
GA	41,200	± 21%	131,300	± 28%	730,800	± 24%
IL	35,300	± 13%	114,900	± 16%	877,100	± 18%
IN	15,400	± 15%	57,000	± 17%	361,500	± 18%
KY	33,500	± 15%	79,600	± 16%	555,700	± 15%
LA	41,300	± 16%	149,800	± 31%	767,300	± 41%
MD	12,100	± 22%	34,600	± 40%	172,100	± 33%
MS	17,200	± 20%	41,200	± 25%	348,700	± 29%
NC	59,800	± 18%	128,500	± 21%	762,500	± 26%
OH	20,900	± 19%	73,000	± 17%	308,000	± 23%
PA	28,400	± 21%	104,700	± 29%	306,600	± 29%
RI	200	± 107%	1,000	± 103%	2,100	± 157%
SC	30,900	± 17%	100,500	± 19%	526,000	± 15%
TN	38,600	± 37%	173,700	± 83%	737,300	± 64%
VA	21,200	± 11%	52,200	± 11%	255,400	± 12%
WV	1,400	± 27%	4,100	± 40%	17,900	± 40%
WI	15,000	± 18%	63,000	± 29%	119,600	± 39%
Unit	481,700		1,519,900	± 12%	8,198,100	± 9%
CENTRAL						
AR	32,900	± 16%	89,000	± 20%	595,600	± 18%
CO	19,100	± 9%	51,200	± 15%	262,000	± 15%
KS	38,100	± 8%	135,100	± 11%	853,600	± 15%
MO	40,600	± 12%	124,800	± 17%	732,900	± 19%
MT	1,600	± 48%	4,900	± 72%	19,100	± 47%
NE	19,000	± 10%	62,900	± 12%	354,900	± 11%
NM	7,100	± 24%	32,900	± 35%	154,400	± 30%
ND	5,700	± 23%	17,300	± 20%	77,800	± 20%
OK	20,100	± 19%	73,800	± 27%	515,600	± 27%
SD	10,900	± 18%	40,400	± 24%	199,900	± 25%
TX	217,700	± 13%	802,800	± 18%	3,909,000	± 16%
WY	3,000	± 40%	7,400	± 49%	39,600	± 76%
Unit	415,800		1,442,600	± 11%	7,714,600	± 9%
WESTERN						
AZ	40,800	± 9%	138,100	± 12%	872,700	± 14%
CA	71,000	± 7%	216,000	± 10%	1,168,300	± 11%
ID	10,800	± 18%	33,800	± 28%	124,800	± 24%
NV	4,700	± 17%	10,800	± 18%	42,100	± 24%
OR	6,400	± 14%	20,500	± 24%	66,900	± 22%
UT	9,300	± 18%	23,200	± 24%	68,900	± 19%
WA	7,600	± 22%	17,300	± 22%	76,300	± 22%
Unit	150,600		459,700	± 7%	2,420,100	± 8%
U.S.	1,048,100 ²		3,422,100	± 7%	18,332,800	± 5%

¹This represents the 95% confidence interval expressed as percent of the point estimate.

²This total is slightly exaggerated because people are counted more than once if they hunted in more than one state.

Table 6. Preliminary estimates of the number of hunters, days hunted, and total bag from Harvest Information Program surveys for the 2004-05 season.

Management Unit	Hunters		Days hunted		Birds bagged	
EASTERN						
AL	43,800	± 8% ¹	124,800	± 28%	724,900	± 14%
DE	3,000	± 19%	11,700	± 40%	54,900	± 25%
FL	15,500	± 17%	55,200	± 27%	255,000	± 21%
GA	47,300	± 11%	146,600	± 17%	963,400	± 21%
IL	39,400	± 8%	123,900	± 11%	890,600	± 11%
IN	14,100	± 15%	46,400	± 14%	291,700	± 14%
KY	27,500	± 18%	78,400	± 25%	593,500	± 25%
LA	26,700	± 18%	82,400	± 28%	388,600	± 23%
MD	11,100	± 19%	46,900	± 46%	176,400	± 25%
MS	32,400	± 10%	89,800	± 16%	627,600	± 17%
NC	20,600	± 27%	41,800	± 28%	215,900	± 25%
OH	17,000	± 21%	74,900	± 28%	325,400	± 27%
PA	26,000	± 16%	112,100	± 39%	296,100	± 29%
RI	300	± 54%	900	± 47%	3,100	± 60%
SC	32,200	± 16%	107,100	± 21%	663,700	± 19%
TN	35,000	± 28%	90,400	± 31%	780,800	± 38%
VA	22,700	± 11%	58,000	± 12%	347,700	± 16%
WV	1,400	± 30%	4,600	± 44%	15,300	± 37%
WI	17,700	± 34%	77,500	± 42%	97,300	± 41%
Unit	433,700		1,373,300	± 7%	7,712,000	± 6%
CENTRAL						
AR	37,900	± 13%	114,000	± 21%	740,600	± 19%
CO	19,400	± 8%	54,800	± 19%	299,900	± 16%
KS	35,800	± 10%	119,300	± 13%	689,400	± 13%
MN	13,700	± 20%	61,100	± 50%	107,000	± 42%
MO	41,600	± 9%	128,800	± 17%	775,900	± 30%
MT	2,600	± 31%	11,300	± 99%	20,900	± 44%
NE	19,100	± 11%	71,400	± 14%	365,900	± 15%
NM	9,900	± 15%	42,000	± 19%	302,800	± 23%
ND	4,500	± 25%	13,000	± 24%	57,500	± 32%
OK	27,100	± 9%	94,000	± 11%	555,300	± 14%
SD	10,000	± 16%	36,700	± 21%	184,100	± 26%
TX	287,700	± 9%	1,089,200	± 13%	5,664,600	± 14%
WY	3,200	± 27%	8,700	± 34%	43,700	± 46%
Unit	512,500		1,844,300	± 8%	9,807,700	± 8%
WESTERN						
AZ	42,500	± 6%	150,100	± 12%	978,200	± 12%
CA	67,900	± 8%	202,500	± 12%	1,060,500	± 10%
ID	11,700	± 17%	38,800	± 20%	132,500	± 21%
NV	3,800	± 20%	8,800	± 20%	36,500	± 26%
OR	6,200	± 18%	20,900	± 26%	72,600	± 30%
UT	12,000	± 14%	37,600	± 22%	119,700	± 20%
WA	6,400	± 24%	17,500	± 28%	70,500	± 20%
Unit	150,500		476,200	± 7%	2,470,600	± 7%
U.S.	1,096,700 ²		3,693,800	± 5%	19,990,200	± 5%

¹This represents the 95% confidence interval expressed as percent of the point estimate.

²This total is slightly exaggerated because people are counted more than once if they hunted in more than one state.