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Mourning Dove: Population Status, 2004

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Mourning Dove

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MOURNING DOVE POPULATION STATUS, 2004

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Abstract: This report includes Mourning Dove Call-count Survey information gathered over the last 39 years within the conterminous United States. Trends were calculated for the most recent 2- and 10-year intervals and for the entire 39-year period. Between 2003 and 2004, the average number of doves heard per route decreased significantly in the Eastern and Central Management Units. No change was detected in the Western Unit. Over the most recent 10 years, no significant trend was indicated for doves heard in any management unit. Over the 39-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 39 years, no trend was found for doves seen in the Eastern and Central Units while a 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 and federal 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). Although some mourning doves winter throughout most of the breeding range, except for central Canada and the north-central U.S., the majority migrate south, wintering in the southern United States and south throughout most of Mexico and 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,

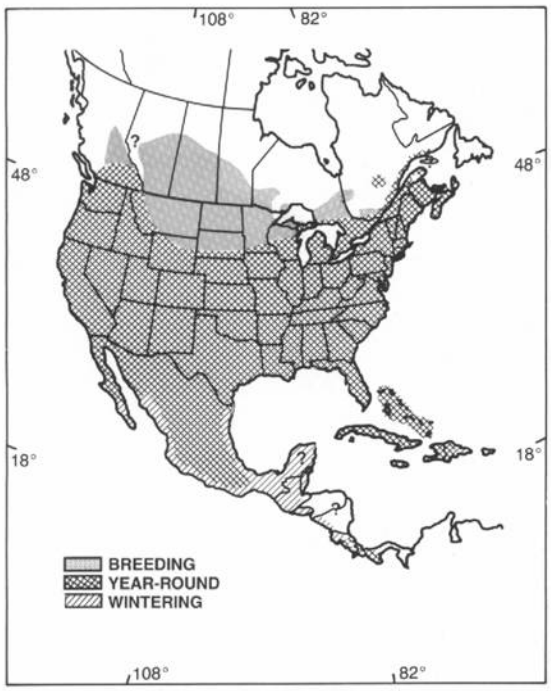

Fig. 1. Breeding and wintering ranges of the mourning dove (adapted from Mirarchi and Baskett 1994).

stratified by physiographic region. The total number of doves heard on each route is used to determine trends in populations and provides the basis for determining 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. 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 made when wind velocities exceed 12 miles per hour or when it is raining.

Estimation of Population Trends

A population trend is defined as 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. For analysis of 10 and 39 year trends, routes that did not meet this requirement during the interval were not included in the sample size; for 2003-2004 change estimation, 0.1 was added to counts to ensure maximum use of information. 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

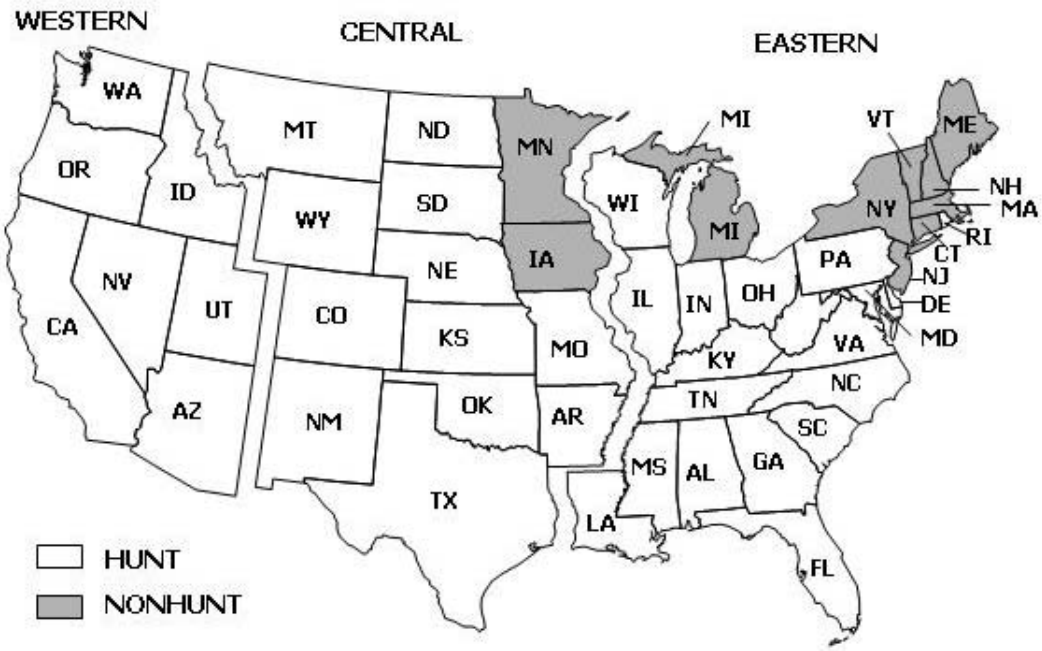

Fig. 2. Mourning dove management units with 2003 hunting and nonhunting states.

doves counted on each route). Variances of state and management unit trends were estimated by using route 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 39-year period were estimated. Additionally, trends in doves seen were estimated over the 10- and 39-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 2003 to 2004, 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 2003 and 2004, 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 2004 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

Fig. 3. Mean number of mourning doves heard per route by state in the Eastern Management Unit, 2003-2004.

estimated densities shown in Figs. 3, 7, and 11 illustrate the average actual numbers of doves counted in 2003 and 2004.

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 19 states, representing 80% of the land area of the unit (Fig. 2).

2003-2004 Population Distribution.—North Carolina had the highest count in the Unit with an average of 34 actual doves heard per route over the 2 years (Fig. 3). Florida, Georgia, Pennsylvania, Virginia, 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.

2003 to 2004 Population Changes.—The average number of doves heard per route in this Unit decreased 7.3% (Table 1). The index also decreased significantly between years in the combined hunting states (-6.4%) and in the combined nonhunting states (-12.1%).

The 2004 population index of 15.6 doves heard per route for the Unit is essentially the same as the predicted count based on the long-term estimate of 15.7 (Fig. 4, Table 3). In the hunting states, the index of 16.6 is essentially the

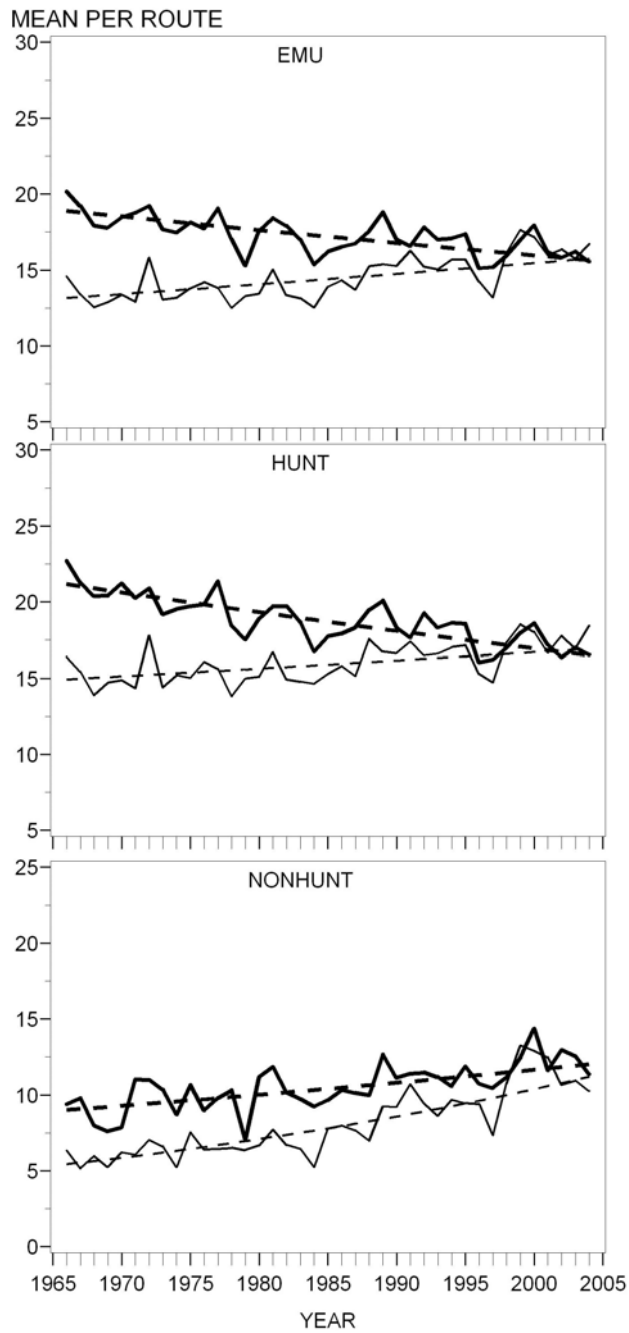

Fig. 4. Population indices and trends of breeding mourning doves in the Eastern Management Unit (EMU), combined EMU hunting states (HUNT), and combined EMU nonhunting states (NONHUNT), 1966-2004. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

same as the predicted estimate of 16.5 while, in the nonhunting states, the index of 11.4 is slightly below the predicted estimate of 12.0.

The doves heard index increased significantly in

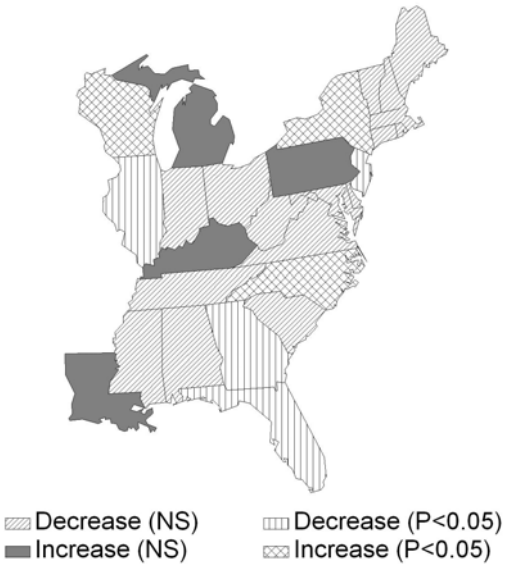

Fig. 5. Trends in number of mourning doves heard per route by state in the Eastern Management Unit, 1995-2004.

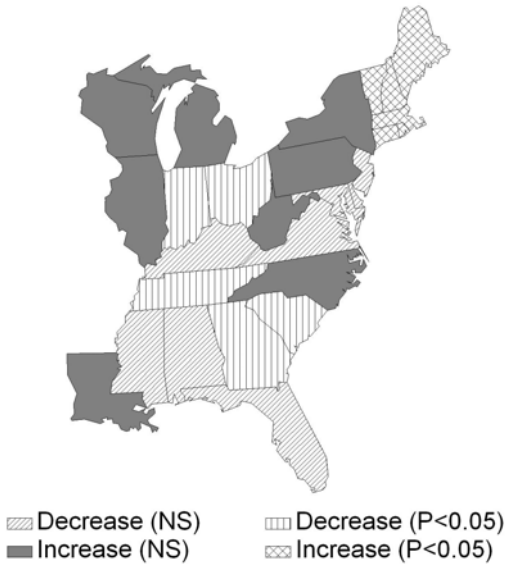

Fig. 6. Trends in the number of mourning doves heard per route by state in the Eastern Management Unit, 1966-2004.

Delaware/Maryland and West Virginia while it decreased in Illinois, Kentucky, Louisiana, and Mississippi (Table 1). No significant changes were detected for the other states.

Population Trends: 10 and 39-year.—Analyses indicated significant declines over the most recent 10 and 39-year periods for the combined hunting states (Table 1). In the combined nonhunting states, no trend was found over either time period. For the Unit, no significant trend was found over 10 years, but a significant decline was indicated for the long-term period. Annual indices both for doves heard and seen are shown in Fig. 4. In contrast to doves heard, an analysis of doves seen indicated a significant increasing trend for the Unit and the 2 groups of states over 10 years (Table 2). Over 39 years, a significant increase was detected for the combined nonhunting states; no trend was shown for the combined hunting states or the Unit (Table 2).

State population trends for doves heard are shown in Fig. 5 (10-year interval) and Fig. 6 (39-year interval) and Table 1. Over 10 years, increases were found for North Carolina, Wisconsin, and New York while Florida, Georgia, Illinois, and New Jersey showed declines. Between 1966 and 2004, an increase was noted in New England while a downward trend was noted in Georgia, Indiana, 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 12 states (Fig. 2).

2003-2004 Population.—Kansas, Nebraska, North Dakota, and South Dakota had the highest actual average number of doves heard per route over the 2 years (35, 32, 34, and 36, respectively) (Fig. 7). Historically, North Dakota and Kansas often have the highest average counts in the Nation (Table 3). Montana, New Mexico, and Wyoming were the only states with less than 10 doves per route. The remaining states had intermediate values.

2003 to 2004 Population Changes.—The average number of doves heard per route in the Unit decreased significantly between the 2 years (-13.2%; Table 1). The 2004 index for the Unit of 20.9 doves heard per route is slightly below the predicted long-term trend estimate of 21.9 (Fig. 8, Table 3).

The population decreased significantly in Arkansas, Iowa, Kansas, North Dakota, and Texas (Table 1).

Population Trends: 10 and 39-year.—No significant trend in doves heard was indicated for the Unit over the short term, but a decline was indicated over the long term (Table 1). In contrast, trends in doves seen were not significant for either time period (Table 2).

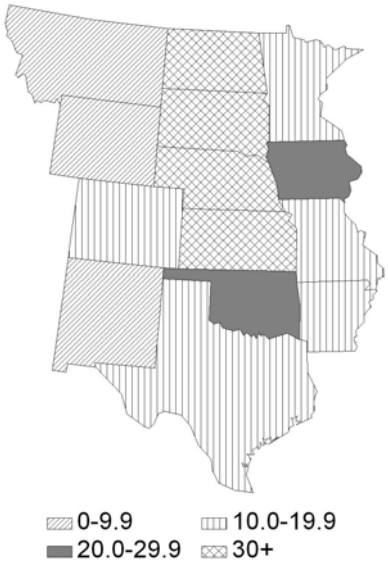

Fig. 7. Mean number of mourning doves heard per route by state in the Central Management Unit, 2003-2004.

State trends in doves heard over 10 years are illustrated in Fig. 9 and Table 1. Oklahoma showed an increase while Minnesota and Missouri had declines during this time. Fig. 10 portrays trends over 39 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 and represent 24% of the land area in the United States. All states within the unit permit mourning dove hunting (Fig. 2).

2003-2004 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.

2003 to 2004 Population Changes.—The average number of doves heard per route did not change significantly between years although the index increased by 10.1% (Table 1). The 2004 population index of 9.4 doves heard per route is above the predicted count of 8.2 based on the long-term estimate (Fig. 12, Table 3).

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

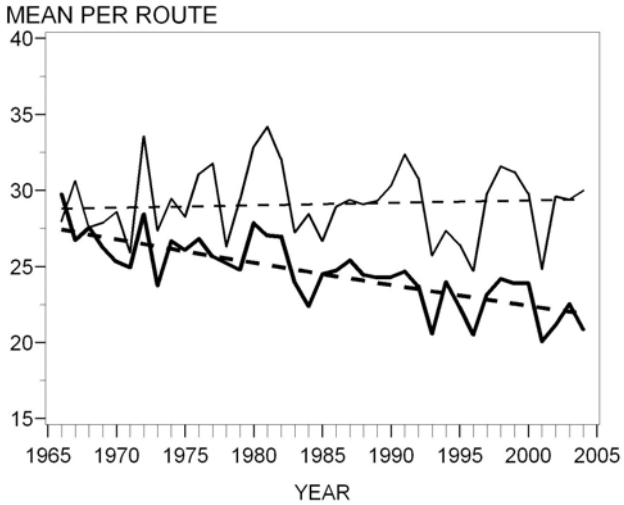

Fig. 8. Population indices and trends of breeding mourning doves in the Central Management Unit, 1966-2004. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

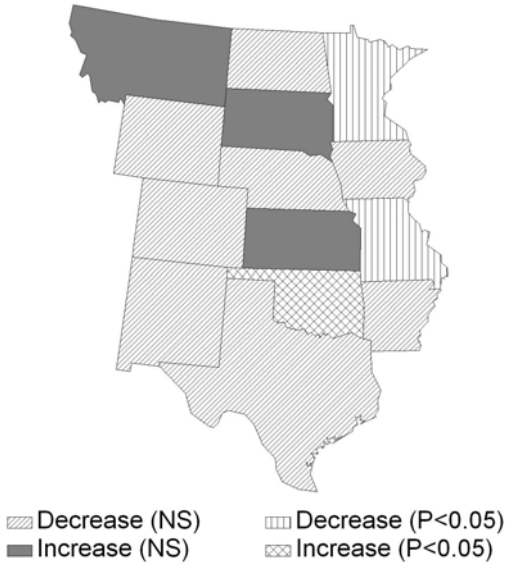

Fig. 9. Trends in number of mourning doves heard per route by state in the Central Management Unit, 1995-2004.

Population Trends: 10 and 39-year.—No significant trend in numbers of doves heard was indicated over 10 years although a significant decline was apparent over 39 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. Idaho and Oregon show significant increases over 10 years while Utah showed a decline. All states in the Unit except Idaho and Washington have a decline between 1966 and 2004.

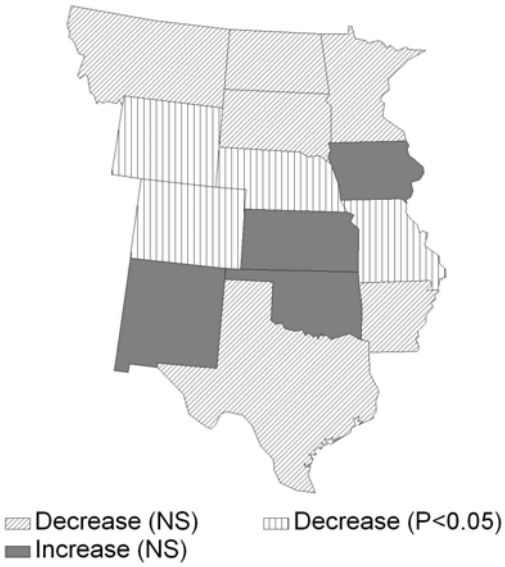

Fig. 10. Trends in mourning doves heard per route by state in the Central Management Unit, 1966-2004.

Fig. 11. Mean number of mourning doves heard per route by state in the Western Management Unit, 2003-2004.

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 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 2003). Sauer et al. (1994) discussed the differences in the methodology of the 2 surveys. The BBS is based on 50-stop routes that are surveyed in June. Also with the BBS, data for doves heard and seen at stops are combined for analyses while those data are analyzed separately with the CCS. Unfortunately, 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 (1994-2003) and over 38 years (1966-2003) 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, 1994-03 the CCS indicated a significant decline ($P<0.01$) in doves heard for the combined hunting states in the EMU while the BBS showed no trend ($P>0.10$). For the nonhunting states, both the CCS and BBS showed a significant increase ($P<0.05$). For the EMU as a whole, there is no trend indicated with the CCS ($P>0.10$) while the BBS showed a significant increase ($P<0.05$). For the CMU, both surveys showed no significant trend (CCS, $P<0.10$; BBS, $P>0.10$). In the WMU, both surveys indicated no trend ($P>0.10$).

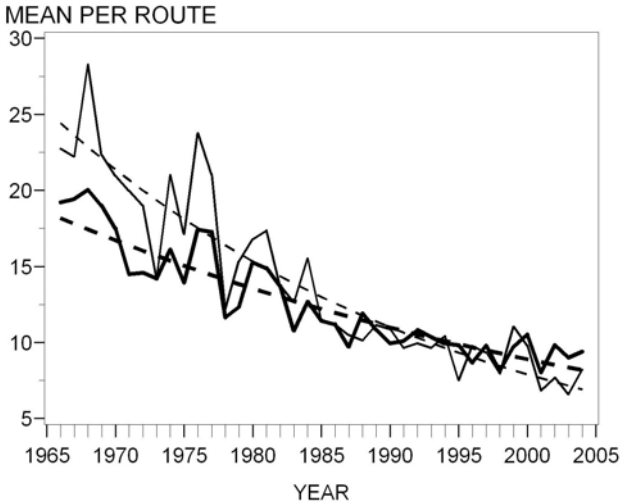

Fig. 12. Population indices and trends of breeding mourning doves in the Western Management Unit, 1966-2004. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

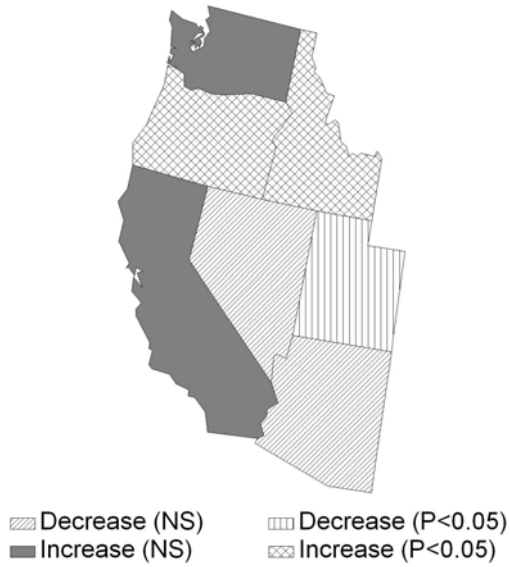

Fig. 13. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1995-2004.

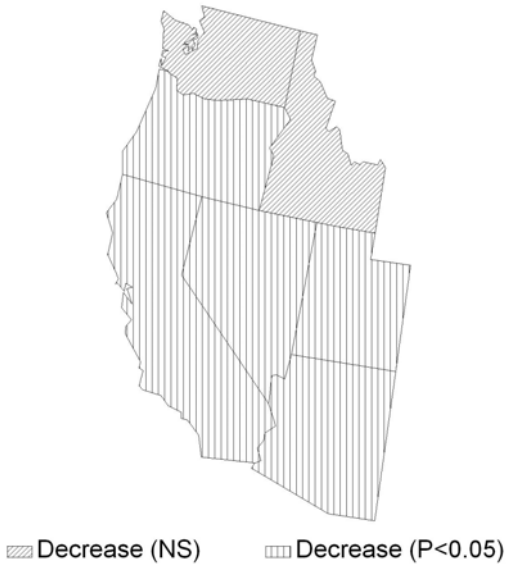

Fig. 14. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1966-2004.

Over 38 years, results were very similar with both surveys for the Central and Western Management Units with both surveys indicating significant declines (CCS: $P<0.01$ for both units; BBS: $P<0.05$ for both Units;). In the Eastern Unit, the CCS analyses indicated a significant decline ($P<0.05$) over the period. 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 ($P<0.05$).

HARVEST ESTIMATES

State Surveys

In past years, a compilation of non-uniform, periodic state harvest surveys has 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 2002-03 hunting season are presented in Table 5 and preliminary results for the 2003-04 season are shown in Table 6. The total estimated harvest for the 2003-04 season by management unit and for the U.S. are as follows: Eastern: 8,078,500 ± 9%; Central: 7,714,600 ± 9%; Western: 2,420,100 ± 8%; and, U.S.: 18,213,200 ± 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 Harvest Surveys Section is continuing to work with states to improve the accuracy and precision of the harvest estimates.

ACKNOWLEDGMENTS

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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, 1966-2004.

	2 year (2003-2004)					10 year (1995-2004)					39 year (1966-2004)				
	N	% Change[b]		90% CI		N	% Change[b]		90% CI		N	% Change[b]		90% CI	
EASTERN UNIT															
Hunt															
AL	26	9.3		-3.4	22.1	28	-1.5		-3.1	0.1	42	-0.7		-1.6	0.2
DE/MD	13	26.2	*	1.9	50.4	14	0.0		-3.4	3.4	19	-1.6		-3.3	0.0
FL	19	9.8		-9.7	29.3	23	-3.1	**	-5.2	-1.1	28	-0.2		-1.1	0.7
GA	15	-0.5		-20.9	19.9	24	-3.3	**	-5.9	-0.7	30	-1.0	**	-1.6	-0.3
IL	16	-16.0	**	-28.2	-3.9	20	-2.6	**	-4.5	-0.7	22	0.2		-1.1	1.4
IN	10	7.0		-13.8	27.7	15	-1.2		-3.4	1.1	18	-1.5	***	-2.4	-0.7
KY	15	-17.4	**	-31.0	-3.7	21	1.7	*	0.0	3.3	26	-0.4		-1.6	0.8
LA	17	-19.0	***	-31.0	-7.1	19	2.1		-1.2	5.4	23	1.3	*	0.2	2.4
MS	18	-30.1	***	-47.7	-12.5	23	-3.6	*	-6.9	-0.2	31	-1.8	*	-3.5	-0.1
NC	20	3.9		-7.9	15.6	21	1.5	**	0.4	2.6	24	0.0		-1.0	1.0
OH	34	-1.1		-9.3	7.1	37	0.0		-2.2	2.1	57	-1.1	***	-1.7	-0.5
PA	16	-3.5		-19.4	12.4	18	0.7		-3.5	4.9	18	1.0		-0.7	2.6
SC	18	-6.5		-19.6	6.6	21	-0.4		-3.4	2.6	27	-1.1	**	-2.0	-0.3
TN	16	-11.0		-22.2	0.3	24	-1.2		-3.6	1.1	32	-1.6	**	-2.7	-0.6
VA	22	-7.0		-22.2	8.2	33	-0.7		-2.3	0.9	33	-1.9		-3.9	0.0
WI	15	-5.1		-15.6	5.5	22	5.7	***	3.1	8.3	23	0.6		-0.7	1.9
WV	10	63.5	*	6.0	121.0	10	-1.3		-5.5	3.0	11	1.5		-0.4	3.3
Subunit	300	-6.4	**	-10.8	-2.1	373	-1.0	**	-1.7	-0.4	464	-0.6	***	-1.0	-0.3
Nonhunt															
MI	14	-13.3		-30.9	4.3	22	1.4		-2.8	5.6	23	0.3		-1.0	1.7
N.England[c]	28	-7.9		-16.2	0.3	42	-0.5		-2.2	1.1	76	1.5	***	0.6	2.3
NJ	9	8.7		-26.8	44.3	11	-3.1	***	-4.1	-2.1	20	-2.3		-5.2	0.6
NY	10	-11.7		-28.3	4.9	17	5.1	**	1.3	8.9	20	1.9		-0.2	4.0
Subunit	61	-12.1	*	-23.5	-0.7	92	1.0		-1.3	3.3	139	0.8		-0.1	1.6
Unit	361	-7.3	***	-11.1	-3.5	465	-0.7	*	-1.4	0.0	603	-0.5	**	-0.8	-0.1
CENTRAL UNIT															
AR	11	-22.4	**	-38.8	-5.9	17	-3.4	*	-6.6	-0.3	18	-0.9		-2.2	0.4
CO	13	6.3		-11.2	23.9	16	-2.9		-6.4	0.6	21	-1.1	***	-1.8	-0.4
IA	14	-13.8	**	-24.2	-3.4	16	-0.4		-2.8	1.9	18	0.0		-0.7	0.8
KS	22	-17.9	***	-27.5	-8.2	28	1.7		-3.5	6.9	34	0.1		-0.7	0.8
MN	7	51.4		-2.7	105.5	12	-5.2	**	-9.2	-1.2	13	-1.7	*	-3.2	-0.2
MO	13	-9.8		-31.1	11.4	20	-6.0	***	-8.0	-4.1	28	-2.1	***	-3.4	-0.9
MT	9	-6.3		-21.9	9.4	17	3.3	*	0.1	6.6	28	-1.7		-3.4	0.1
NE	21	-12.1		-29.0	4.7	24	-2.1	*	-4.0	-0.1	27	-1.0	**	-1.7	-0.3
NM	18	-8.0		-22.2	6.3	28	-1.5		-5.8	2.7	31	0.5		-0.5	1.6
ND	21	-25.1	***	-38.9	-11.3	27	-0.8		-2.4	0.7	30	-0.2		-1.5	1.2
OK	16	7.1		-10.3	24.5	16	3.1	**	0.7	5.6	25	0.7		-2.9	4.4
SD	19	8.6		-10.8	27.9	19	1.4		-1.9	4.7	28	-0.6		-2.2	1.0
TX	120	-18.1	***	-27.5	-8.7	143	-0.9		-2.0	0.3	205	-0.5		-1.2	0.2
WY	12	23.0		-24.6	70.7	17	-4.1	*	-8.0	-0.2	23	-3.5	***	-5.7	-1.3
Unit	316	-13.2	***	-18.7	-7.7	400	-0.7		-1.5	0.2	529	-0.6	**	-1.0	-0.2
WESTERN UNIT															
AZ	33	-3.6		-24.6	17.4	55	-0.2		-2.5	2.1	69	-1.1	**	-1.8	-0.4
CA	54	15.2	*	2.0	28.4	60	1.0		-0.7	2.8	83	-2.4	***	-3.5	-1.3
ID	15	16.2		-28.7	61.2	23	3.5	**	0.8	6.2	28	-2.4	*	-4.6	-0.2
NV	14	34.4		-8.5	77.2	24	-1.6		-5.1	1.9	31	-4.4	***	-6.3	-2.4
OR	13	-0.3		-7.6	7.0	20	5.9	***	3.2	8.6	25	-2.1	**	-3.6	-0.7
UT	12	78.8	**	15.3	142.3	15	-2.6	**	-4.6	-0.5	19	-3.6	**	-6.2	-1.0
WA	15	-7.6		-39.8	24.6	22	0.8		-6.5	8.1	27	-2.5	*	-4.6	-0.3
Unit	156	10.1		-1.6	21.8	219	0.1		-1.1	1.3	282	-2.1	***	-2.7	-1.5

[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., 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.

[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, 1966-2004.

	10 year (1995-2004)					39 year (1966-2004)				
	N	% Change[b]		90% CI		N	% Change[b]		90% CI	
EASTERN UNIT										
Hunt										
AL	28	1.5		-0.9	3.9	42	-1.0		-2.0	0.0
DE/MD	14	4.1	**	0.7	7.4	19	0.7		-0.8	2.2
FL	24	3.9	**	0.8	7.1	28	4.6	***	3.1	6.1
GA	24	1.0		-5.3	7.4	30	0.6		-0.7	1.9
IL	20	6.4	***	2.7	10.2	22	-0.9		-2.7	0.8
IN	15	3.8		-0.4	8.1	18	-2.1		-5.0	0.8
KY	21	3.8	***	2.3	5.3	24	1.7	**	0.3	3.1
LA	18	4.5	***	2.3	6.6	23	2.3	***	1.2	3.3
MS	23	-0.8		-5.4	3.9	31	-1.0		-3.2	1.2
NC	21	2.3		-0.3	4.8	24	-0.4		-1.2	0.5
OH	37	3.2	***	1.3	5.1	57	1.2		-0.4	2.8
PA	18	3.0	*	0.2	5.9	18	1.3		-0.7	3.3
SC	21	4.2	***	1.8	6.5	27	1.2	**	0.3	2.1
TN	24	0.6		-2.2	3.3	32	-0.6		-1.7	0.5
VA	33	0.0		-2.5	2.4	33	-1.6		-4.2	1.0
WI	21	5.5	**	1.9	9.0	23	2.7	***	1.5	4.0
WV	10	2.9		-2.7	8.5	11	3.9	***	2.2	5.7
Subunit	372	3.2	***	2.3	4.2	462	0.3		-0.4	1.1
Nonhunt										
MI	22	5.2	***	2.6	7.7	23	1.8	**	0.7	2.9
N.England[c]	41	-0.2		-2.1	1.8	73	1.8		-0.1	3.8
NJ	11	-3.2		-8.4	1.9	20	-1.4		-3.4	0.6
NY	16	5.9	**	2.1	9.7	20	3.6	**	0.8	6.4
Subunit	90	3.6	***	1.8	5.5	136	1.9	***	1.0	2.8
Unit	462	3.3	***	2.5	4.2	598	0.5		-0.2	1.2
CENTRAL UNIT										
AR	18	3.8		-0.3	8.0	19	-1.2	**	-2.0	-0.4
CO	16	-1.7		-6.1	2.6	20	0.1		-1.1	1.3
IA	16	1.2		-0.7	3.1	18	-0.2		-1.1	0.7
KS	28	0.2		-3.5	4.0	34	-0.7		-1.4	0.1
MN	12	-0.9		-5.9	4.2	14	-0.8		-2.5	0.9
MO	20	-0.9		-3.8	2.0	28	-3.1	***	-4.6	-1.6
MT	19	0.9		-4.6	6.4	28	0.8		-0.6	2.2
NE	24	0.6		-0.9	2.1	27	-0.6		-1.9	0.8
NM	28	0.6		-3.6	4.7	31	-0.7		-3.6	2.2
ND	27	1.2		-1.7	4.1	30	0.3		-1.1	1.7
OK	16	0.2		-1.5	1.9	25	-0.3		-1.5	1.0
SD	19	4.5	**	0.7	8.3	28	-0.3		-2.5	1.9
TX	143	0.4		-1.1	1.9	206	0.8	**	0.2	1.5
WY	14	-7.0		-15.7	1.7	21	-4.4	*	-8.5	-0.4
Unit	400	0.5		-0.5	1.4	529	0.0		-0.4	0.5
WESTERN UNIT										
AZ	54	-1.7		-5.3	1.8	70	-4.4	***	-6.5	-2.4
CA	55	2.7	*	0.3	5.0	82	-2.4	***	-3.4	-1.3
ID	22	0.1		-9.6	9.7	28	-3.5	*	-6.8	-0.3
NV	21	-4.3		-10.2	1.5	32	-2.7		-5.8	0.4
OR	19	-13.0	**	-23.9	-2.2	23	-4.9	***	-7.3	-2.5
UT	14	1.9		-2.1	6.0	19	-4.9	**	-8.9	-1.0
WA	22	3.5	**	1.1	5.9	24	0.6		-1.9	3.1
Unit	207	-0.7		-2.9	1.4	278	-3.3	***	-4.2	-2.4

[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., 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.

[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, 1966-2004.

Management unit/state	year 1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
EASTERN UNIT										
Hunt										
AL	25.4	22.7	20.4	20.7	21.0	17.2	24.6	21.5	16.3	20.8
DE/MD	16.9	20.7	14.5	15.3	18.9	16.2	17.6	17.4	18.4	13.1
FL	12.0	11.5	9.8	10.4	13.2	11.1	11.3	11.5	13.7	14.2
GA	29.8	27.9	23.9	25.6	32.4	25.5	24.3	26.7	27.7	30.1
IL	23.7	20.4	24.2	21.0	24.1	22.0	22.6	22.1	18.7	25.8
IN	37.6	34.6	34.0	32.9	31.8	42.9	37.5	33.5	31.9	33.6
KY	24.1	21.9	21.3	22.3	26.8	24.0	20.2	24.0	27.9	19.6
LA	10.0	10.3	9.6	11.2	7.0	10.1	11.2	8.7	10.2	10.7
MS	40.8	35.1	29.7	27.3	30.3	30.9	34.4	30.8	24.7	26.1
NC	34.8	28.2	29.7	42.4	48.9	28.5	23.1	44.0	25.1	14.2
OH	24.7	23.3	21.1	24.0	23.7	24.5	25.6	20.3	24.7	37.7
PA	8.8	9.4	8.7	8.3	5.5	6.3	8.8	5.8	8.5	5.9
SC	33.3	36.3	37.0	35.7	33.6	29.4	26.1	29.8	27.8	27.5
TN	32.5	23.7	24.3	24.0	32.5	23.0	29.0	22.1	23.5	22.5
VA	25.6	21.4	24.2	21.5	27.4	22.1	13.2	15.6	21.3	23.8
WI	10.6	13.6	13.6	10.4	11.3	16.3	17.1	11.3	12.0	15.0
WV	6.4	5.4	5.5	6.0	5.5	5.0	6.6	3.9	4.1	2.4
Subunit	22.7	21.3	20.4	20.4	21.2	20.3	20.9	19.2	19.5	19.7
Nonhunt										
MI	14.0	15.2	10.0	10.3	8.3	16.4	17.0	13.5	11.5	12.8
N.England[b]	6.0	6.5	5.9	5.1	6.0	6.3	7.0	8.1	5.2	4.9
NJ	20.7	17.7	21.9	20.1	27.2	25.4	26.7	23.5	22.8	16.3
NY	6.2	6.2	5.9	5.5	7.2	8.4	6.6	6.9	7.1	12.6
Subunit	9.4	9.8	8.0	7.6	7.9	11.0	11.0	10.4	8.7	10.7
Unit	20.2	19.2	17.9	17.8	18.5	18.8	19.2	17.7	17.5	18.1
CENTRAL UNIT										
AR	22.8	23.8	22.8	21.9	23.7	23.7	22.2	25.0	23.0	22.1
CO	25.0	24.5	22.3	30.3	30.3	22.0	27.8	17.1	27.2	19.9
IA	31.7	28.4	30.8	27.6	20.0	24.6	32.7	30.9	24.6	22.8
KS	46.3	47.7	49.5	50.2	46.3	47.1	52.7	46.9	46.6	44.7
MN	31.4	25.1	27.0	19.9	15.8	22.7	26.2	19.8	27.4	30.1
MO	39.6	37.4	46.9	28.3	39.1	32.8	44.4	33.4	28.5	33.5
MT	27.6	25.5	20.0	22.2	17.8	25.2	20.1	14.4	16.8	22.9
NE	46.9	41.1	52.3	51.1	49.4	46.8	44.9	42.9	44.5	41.8
NM	15.0	11.2	15.6	11.9	11.7	11.0	12.6	9.0	10.9	13.5
ND	40.7	39.0	53.3	44.2	39.2	40.3	41.7	45.7	44.2	32.1
OK	18.1	22.3	26.4	25.4	20.1	15.8	26.1	24.6	26.0	23.6
SD	50.3	31.6	43.2	36.7	43.8	38.6	38.4	40.5	48.6	41.0
TX	27.0	22.4	22.0	20.0	21.1	20.5	27.4	21.9	23.3	21.1
WY	23.8	25.0	13.0	21.0	20.0	11.3	15.1	15.1	21.6	19.0
Unit	29.7	26.7	27.6	26.2	25.3	25.0	28.4	23.8	26.7	26.1
WESTERN UNIT										
AZ	28.6	28.7	25.6	30.5	30.5	20.6	23.1	27.9	24.1	26.5
CA	27.8	26.2	24.2	23.9	23.4	17.5	21.3	20.5	22.2	18.7
ID	17.0	17.5	15.8	16.6	15.5	12.3	11.8	14.5	12.3	8.5
NV	11.6	10.7	25.4	17.6	12.7	7.7	10.3	7.2	9.7	6.1
OR	15.8	10.5	12.5	11.4	8.6	7.6	7.4	7.3	12.9	9.7
UT	20.7	31.7	16.1	15.2	17.8	24.9	14.5	12.6	14.4	15.4
WA	12.1	17.7	16.6	13.2	13.4	15.8	11.3	10.2	12.8	13.8
Unit	19.2	19.4	20.0	19.0	17.5	14.5	14.6	14.2	16.1	13.9

[a]Annual 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 39-year period.
[b] 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, 1966-2004.

Management unit/state	year 1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
EASTERN UNIT										
Hunt										
AL	20.0	22.1	24.2	23.3	23.2	22.2	22.6	22.6	18.9	24.1
DE/MD	16.0	14.7	15.4	14.9	14.2	13.6	14.2	10.0	11.5	12.5
FL	13.1	14.4	11.2	12.2	9.7	8.7	10.3	11.9	8.2	10.5
GA	23.7	24.6	27.1	23.7	24.1	26.7	28.7	25.6	20.9	26.6
IL	25.3	27.0	20.7	18.0	18.4	20.6	25.1	25.8	20.9	18.0
IN	33.8	37.7	20.4	21.6	27.4	31.6	22.4	19.2	20.9	18.4
KY	24.6	23.1	24.7	17.0	16.5	28.0	24.1	13.5	21.6	22.5
LA	10.8	8.9	10.5	8.9	12.4	10.7	13.4	12.4	11.8	10.6
MS	26.6	27.3	30.8	26.3	25.0	25.0	31.6	26.5	19.5	25.8
NC	17.3	46.0	24.6	29.1	28.3	27.8	23.3	27.6	30.9	21.5
OH	27.4	26.3	13.9	13.5	16.2	19.6	18.7	19.9	18.4	17.3
PA	6.0	4.9	6.0	6.7	8.0	9.5	9.0	9.0	8.2	9.1
SC	27.2	23.1	30.6	25.9	32.6	31.7	32.7	31.1	28.2	28.4
TN	22.2	24.3	30.1	20.6	22.3	18.8	25.2	19.5	16.7	21.5
VA	22.9	30.5	22.6	19.9	19.5	16.9	18.6	18.4	18.0	16.9
WI	15.1	19.8	8.0	11.7	15.1	20.3	11.3	13.2	10.4	10.7
WV	5.9	5.6	6.4	7.2	8.3	6.7	6.3	6.0	5.3	6.6
Subunit	19.8	21.4	18.4	17.6	18.9	19.7	19.7	18.7	16.8	17.7
Nonhunt										
MI	13.0	11.0	12.6	7.4	13.6	15.5	11.3	10.0	10.7	11.8
N.England[b]	4.6	8.6	7.3	6.1	7.5	9.2	7.5	8.0	6.9	7.6
NJ	20.5	22.4	17.8	19.0	17.7	14.3	16.5	19.6	12.4	12.4
NY	7.5	7.4	9.0	6.1	10.9	9.2	9.9	9.1	9.0	8.2
Subunit	9.0	9.8	10.3	7.1	11.2	11.8	10.1	9.7	9.2	9.7
Unit	17.8	19.1	17.0	15.3	17.6	18.4	17.9	17.0	15.4	16.2
CENTRAL UNIT										
AR	26.8	21.8	15.4	12.5	20.7	22.6	26.3	19.7	14.0	13.9
CO	28.2	25.9	28.6	23.6	27.1	30.5	29.5	16.2	20.2	24.0
IA	28.0	21.8	24.5	20.9	28.2	31.1	22.4	16.0	23.5	26.0
KS	49.2	46.7	36.7	53.7	58.4	55.8	53.2	60.1	47.6	61.7
MN	26.0	29.9	28.8	29.3	31.6	27.8	24.4	21.3	18.2	19.8
MO	29.6	34.3	22.0	20.9	32.6	27.5	24.2	23.4	22.3	21.3
MT	16.7	20.3	19.6	19.5	17.9	16.7	21.4	17.2	13.0	18.0
NE	47.2	47.7	39.2	41.9	53.3	50.6	49.3	44.9	42.8	44.0
NM	13.2	11.7	11.8	8.0	12.9	12.8	10.0	13.5	14.4	12.3
ND	51.7	42.6	45.3	42.3	47.9	48.3	45.2	43.1	33.8	44.2
OK	24.9	32.4	24.9	24.5	25.6	25.5	26.7	27.3	20.8	20.4
SD	44.1	38.7	41.7	40.9	41.0	36.9	44.0	38.0	42.4	39.8
TX	20.6	19.7	20.5	25.3	24.2	22.0	21.2	19.7	19.3	20.0
WY	17.5	11.1	17.5	13.2	11.8	13.1	16.8	11.2	10.1	11.6
Unit	26.8	25.7	25.2	24.8	27.9	27.0	27.0	23.9	22.4	24.5
WESTERN UNIT										
AZ	27.4	24.5	24.5	24.0	21.4	24.1	27.5	21.4	26.3	21.2
CA	22.4	17.2	15.5	12.0	20.3	16.9	20.9	12.9	17.9	12.7
ID	15.7	19.1	10.6	10.2	10.8	11.8	12.2	9.4	11.0	10.1
NV	10.0	10.2	6.0	8.8	12.6	9.1	5.1	4.6	4.5	5.7
OR	10.2	11.4	6.1	6.3	9.4	8.0	7.9	6.0	7.6	8.3
UT	17.9	21.0	9.3	11.5	13.8	18.3	11.1	11.2	12.5	8.3
WA	13.3	14.4	9.3	13.0	8.9	10.6	9.9	8.3	7.3	9.1
Unit	17.4	17.3	11.7	12.4	15.3	14.9	13.7	10.8	12.7	11.4

[a]Annual 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 39-year period.
[b] 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, 1966-2004.

Management unit/state	year 1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
EASTERN UNIT										
Hunt										
AL	21.9	19.5	21.5	18.4	17.3	16.1	18.4	20.1	20.8	21.9
DE/MD	14.9	13.0	12.1	16.6	8.0	12.3	15.8	10.7	13.0	11.6
FL	12.3	11.1	13.3	12.0	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	24.8	24.2	27.3	26.7	26.1	26.4	27.3	23.7	26.4	27.2
IN	24.4	24.5	29.5	25.0	27.2	27.4	24.2	25.6	30.4	24.6
KY	20.2	24.9	19.8	27.2	22.7	21.6	17.2	22.1	21.3	20.9
LA	9.7	13.8	10.3	16.0	11.3	11.7	15.6	11.9	13.0	14.8
MS	25.4	22.5	26.6	25.0	21.0	17.4	22.7	24.8	20.9	19.1
NC	30.1	29.2	26.8	31.5	28.8	24.3	23.6	24.5	24.8	26.9
OH	16.9	18.5	21.1	19.8	18.2	19.5	20.4	17.3	19.2	17.5
PA	9.6	10.9	7.3	9.4	9.5	9.6	10.6	11.8	11.2	10.7
SC	24.0	35.1	27.8	26.6	28.8	23.3	22.9	26.9	23.9	19.2
TN	16.2	20.0	19.6	17.8	15.6	18.8	18.3	16.1	19.8	18.2
VA	13.7	14.4	15.7	15.3	13.0	13.7	12.1	13.7	13.5	14.6
WI	11.5	7.6	17.9	18.0	14.3	12.9	19.6	18.7	15.5	13.2
WV	6.2	6.5	7.5	8.1	10.7	9.1	7.4	8.6	9.4	9.7
Subunit	17.9	18.3	19.5	20.1	18.3	17.7	19.3	18.3	18.6	18.6
Nonhunt										
MI	15.1	12.3	14.9	18.6	14.0	11.4	13.3	12.3	11.6	12.9
N.England[b]	8.2	7.8	7.3	7.7	8.5	9.3	9.9	10.5	9.4	11.8
NJ	14.6	13.4	13.0	15.9	12.4	15.2	9.7	15.6	13.5	10.1
NY	6.9	9.2	7.4	11.5	10.1	12.6	10.8	9.5	9.7	10.8
Subunit	10.3	10.1	10.0	12.7	11.1	11.4	11.5	11.2	10.6	11.9
Unit	16.5	16.8	17.6	18.8	17.0	16.6	17.8	17.0	17.1	17.4
CENTRAL UNIT										
AR	15.0	14.0	15.5	21.7	16.9	15.3	18.4	16.9	20.2	18.7
CO	23.0	24.5	26.5	29.8	26.8	17.7	13.4	12.9	22.8	19.0
IA	23.5	22.5	30.5	27.6	31.5	23.3	31.0	23.0	24.1	25.5
KS	42.5	46.2	53.6	48.4	42.3	59.1	57.5	39.0	52.3	62.6
MN	18.1	23.1	23.5	18.7	15.3	18.9	22.0	15.8	19.6	19.4
MO	22.1	24.8	25.0	24.5	19.8	21.6	22.7	21.8	26.2	22.8
MT	18.8	18.1	14.9	19.0	20.7	13.5	14.5	10.5	9.8	12.4
NE	36.7	36.2	36.2	40.2	39.9	40.7	38.3	40.2	37.3	40.8
NM	14.7	17.7	13.3	14.7	16.1	14.9	9.7	10.9	13.6	12.3
ND	40.5	46.3	43.6	45.3	43.8	48.2	51.8	45.0	38.8	40.6
OK	23.0	25.7	22.6	17.3	22.7	23.1	26.4	22.7	29.8	22.5
SD	37.0	32.4	38.4	41.4	42.9	45.2	36.5	32.9	35.8	37.0
TX	21.5	21.2	21.8	16.7	17.7	24.6	22.5	20.5	22.7	17.1
WY	14.2	11.4	7.4	8.7	8.7	9.3	9.5	6.9	9.0	6.5
Unit	24.7	25.4	24.4	24.3	24.3	24.7	23.7	20.6	24.0	22.3
WESTERN UNIT										
AZ	25.1	16.9	18.9	23.4	17.8	22.7	24.4	24.8	22.0	20.8
CA	14.7	11.3	15.1	11.1	11.1	10.9	11.8	14.3	11.8	11.4
ID	7.2	7.3	9.6	9.6	10.4	9.5	8.8	7.6	7.5	6.9
NV	3.7	4.3	5.9	5.1	3.6	4.7	3.9	3.3	3.0	5.0
OR	6.7	6.1	7.6	6.3	7.1	4.4	6.9	5.7	6.8	5.6
UT	11.5	10.1	10.4	10.8	9.3	8.4	10.8	9.1	9.6	6.2
WA	10.9	8.6	8.7	7.4	7.7	9.7	8.6	7.3	7.6	8.4
Unit	11.2	9.7	11.9	10.8	10.0	10.1	10.8	10.4	9.9	9.8

[a]Annual 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 39-year period.
[b] 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, 1966-2004.

Management unit/state	year 1996	1997	1998	1999	2000	2001	2002	2003	2004
EASTERN UNIT									
Hunt									
AL	17.0	15.9	17.7	17.0	18.1	17.4	20.3	15.9	18.2
DE/MD	10.9	9.0	12.5	9.0	8.6	8.6	7.3	11.3	11.6
FL	10.8	10.0	12.4	13.1	12.6	9.6	10.3	10.9	10.5
GA	22.1	19.0	18.2	18.5	16.4	22.7	12.3	19.6	18.3
IL	21.5	21.8	21.9	20.2	26.4	21.9	23.8	25.6	20.9
IN	21.1	20.8	21.0	21.9	23.6	20.8	19.1	19.2	21.3
KY	17.8	16.7	21.8	22.2	23.1	19.4	22.5	21.2	18.3
LA	12.0	12.3	13.9	14.6	17.6	18.7	14.8	17.0	13.9
MS	17.9	17.2	17.6	21.3	18.5	17.6	14.1	16.1	12.9
NC	27.4	30.1	29.4	30.0	35.8	39.7	33.6	32.4	29.2
OH	14.1	14.0	16.4	17.1	18.2	14.9	17.0	16.4	15.3
PA	10.5	9.8	11.6	9.6	11.2	10.7	10.8	9.9	10.2
SC	24.2	23.1	26.1	25.0	23.1	23.9	22.3	23.3	21.3
TN	15.5	16.6	16.0	16.1	17.7	14.1	14.8	14.6	14.1
VA	11.7	14.8	14.0	14.3	15.4	12.3	14.4	11.2	12.7
WI	11.9	12.4	9.9	19.0	16.7	16.2	13.7	19.1	19.6
WV	4.8	10.2	8.5	9.9	9.4	6.5	9.3	5.5	10.3
Subunit	16.0	16.2	17.0	18.0	18.6	17.2	16.4	17.0	16.6
Nonhunt									
MI	13.3	12.9	14.7	14.4	17.5	14.3	14.3	15.5	12.7
N.England[b]	8.1	8.1	8.8	10.2	10.8	9.0	12.0	9.5	9.1
NJ	13.1	7.0	11.4	9.2	11.9	6.3	10.7	9.0	8.7
NY	10.2	10.9	9.5	12.7	14.6	12.2	12.2	12.8	12.5
Subunit	10.7	10.5	11.2	12.5	14.4	11.6	13.0	12.6	11.4
Unit	15.1	15.2	16.0	17.0	17.9	16.2	15.8	16.2	15.6
CENTRAL UNIT									
AR	19.0	19.4	19.6	17.7	17.3	17.5	13.2	19.4	15.4
CO	14.2	19.2	20.1	21.8	21.7	13.8	17.0	16.6	19.7
IA	32.7	26.7	29.4	26.5	23.3	22.4	23.6	32.1	32.1
KS	33.4	59.7	55.6	68.0	51.6	33.2	47.7	55.9	47.1
MN	18.4	19.4	18.2	16.3	16.7	13.4	19.2	10.0	11.5
MO	22.4	22.0	19.8	18.3	18.9	16.0	17.8	19.3	14.3
MT	12.6	11.6	14.3	13.1	14.4	10.5	12.8	12.2	12.7
NE	34.0	31.4	39.8	36.3	36.3	30.4	28.8	39.1	31.1
NM	10.6	14.0	11.7	13.7	15.6	15.9	11.2	15.3	13.7
ND	42.4	37.7	35.0	46.2	46.3	37.0	31.3	46.2	34.6
OK	23.9	23.0	33.1	30.0	25.2	26.3	25.1	32.7	34.8
SD	37.5	32.1	34.2	35.8	38.1	34.0	36.5	36.6	34.4
TX	14.7	21.9	22.3	22.0	19.4	19.6	19.2	19.8	16.4
WY	7.6	7.3	7.8	5.8	8.2	5.1	6.6	5.1	5.5
Unit	20.5	23.2	24.2	23.9	23.9	20.1	21.2	22.5	20.9
WESTERN UNIT									
AZ	12.2	18.7	21.5	23.5	24.5	17.8	18.0	16.8	18.4
CA	11.8	10.3	10.8	11.1	10.3	9.6	11.7	10.3	11.3
ID	6.6	9.3	5.5	7.4	6.9	5.4	8.9	6.5	7.2
NV	4.5	4.1	3.5	4.4	3.5	2.9	3.3	3.2	3.1
OR	5.3	5.4	4.1	4.2	6.6	4.7	5.9	6.3	5.5
UT	7.0	8.8	5.1	8.2	13.1	5.6	7.9	6.5	7.6
WA	5.5	6.9	4.8	6.5	7.5	7.0	7.2	8.0	6.9
Unit	8.7	9.8	8.1	9.7	10.5	8.0	9.8	9.0	9.4

[a]Annual 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 39-year period.
[b] New 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, 1966-2003.

	10 year (1994-03)					38 year (1966-03)				
	N	% Change[b]		90% CI		N	% Change[b]		90%CI	
EASTERN UNIT										
Hunt										
AL	92	-1.6	*	-2.8	-0.4	98	-1.3	**	-2.0	-0.6
DE/MD	68	-1.1		-2.3	0.0	78	0.4		-0.2	0.9
FL	72	-0.1		-1.9	1.7	84	2.6	**	1.8	3.3
GA	58	-1.2		-2.7	0.4	67	-1.4	*	-2.3	-0.5
IL	98	2.1	*	0.6	3.5	98	0.8		0.0	1.6
IN	55	0.4		-1.0	1.8	59	0.0		-0.5	0.4
KY	36	2.9	**	1.6	4.2	49	0.5		-0.1	1.1
LA	49	5.9	**	3.3	8.6	66	2.4	**	1.1	3.7
MS	25	-3.1		-6.9	0.6	34	-1.5	**	-2.3	-0.6
NC	69	-0.7		-2.4	1.1	79	-0.3		-1.1	0.5
OH	66	1.7	**	0.8	2.6	78	0.7		0.1	1.3
PA	100	2.1	**	1.0	3.3	120	2.1	**	1.4	2.7
SC	32	2.7	*	0.8	4.5	38	0.0		-0.9	0.8
TN	41	0.4		-1.5	2.4	46	-0.6		-1.5	0.2
VA	49	-0.4		-1.6	0.7	55	-0.6		-1.1	0.0
WV	50	4.3	**	3.1	5.5	56	5.3	**	4.5	6.1
Subunit	960	0.6		0.1	1.1	1105	0.1		-0.2	0.4
Nonhunt										
MI	60	3.9	**	2.4	5.4	78	0.6		0.0	1.2
N.England[c]	132	2.0	**	1.1	2.9	154	3.4	**	2.6	4.2
NJ	27	0.4		-1.6	2.3	37	0.5		-0.7	1.7
NY	101	3.5	**	2.5	4.5	115	2.8	**	2.4	3.3
WI	91	3.6	**	2.3	4.9	93	1.3	*	0.4	2.1
Subunit	411	3.1	**	2.5	3.7	477	1.8	**	1.4	2.2
Unit	1371	1.1	**	0.6	1.5	1582	0.5	**	0.2	0.7
CENTRAL UNIT										
AR	32	2.1	*	0.4	3.7	35	0.5		-0.7	1.7
CO	118	1.0		-0.4	2.3	126	1.0		0.0	2.1
IA	33	3.5		0.0	7.0	37	-0.7		-1.6	0.2
KS	58	0.5		-1.3	2.3	59	0.0		-0.9	0.8
MN	58	2.0		-0.3	4.3	67	-1.1		-2.1	0.0
MO	54	0.0		-1.3	1.3	64	-2.1	**	-2.8	-1.4
MT	48	-1.0		-3.5	1.5	53	-1.0		-1.9	-0.1
NE	39	-0.5		-1.7	0.8	46	-0.9	**	-1.5	-0.4
NM	65	1.3		-1.5	4.2	73	-0.3		-1.7	1.2
ND	44	-0.5		-2.5	1.4	46	0.9	*	0.3	1.5
OK	54	0.5		-1.1	2.1	60	-1.6	**	-2.2	-0.9
SD	39	0.6		-0.9	2.2	51	0.6		-0.2	1.4
TX	169	0.4		-0.6	1.4	195	-1.4	**	-1.9	-0.9
WY	77	1.0		-1.1	3.2	101	0.2		-1.2	1.5
Unit	888	0.6		0.0	1.1	1013	-0.6	**	-0.8	-0.3
WESTERN UNIT										
AZ	51	-1.0		-4.0	2.1	71	-1.5		-3.2	0.2
CA	165	0.7		-0.6	1.9	216	-1.1	*	-1.8	-0.4
ID	39	2.6		-1.2	6.4	43	-0.9		-1.8	0.0
NV	22	0.1		-2.8	2.9	33	2.4	*	0.5	4.3
OR	78	0.7		-2.0	3.3	96	-2.1	*	-3.5	-0.7
UT	81	-3.0	*	-4.9	-1.0	86	-2.3	**	-3.4	-1.1
WA	59	-0.4		-2.6	1.8	65	0.1		-1.2	1.5
Unit	495	-0.1		-1.2	1.0	610	-1.2	**	-1.7	-0.7

[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., 38 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 5. Preliminary estimates of the number of hunters, days hunted, total bag, and confidence intervals for each from Harvest Information Program surveys for the 2002-03 season.

Management Unit	Hunters	95% CI	Days hunted	95% CI	Birds bagged	95% CI
EASTERN						
AL	59,200	7%	171,000	10%	1,274,700	12%
DE	3,500	19%	12,600	22%	80,600	25%
FL	17,100	23%	60,600	30%	305,900	25%
GA	56,800	12%	188,200	21%	1,238,000	20%
IL	32,900	9%	118,800	15%	693,700	18%
IN	18,100	15%	61,800	17%	362,800	20%
KY	39,800	10%	120,600	17%	822,100	16%
LA	27,000	24%	73,900	24%	502,600	31%
MD	9,200	21%	29,900	32%	172,400	40%
MS	28,300	12%	89,700	15%	823,600	14%
NC	42,900	16%	117,200	22%	707,700	24%
OH	20,000	25%	87,200	32%	302,700	14%
PA	31,200	16%	130,700	18%	457,000	28%
RI	300	97%	1,000	100%	4,400	115%
SC	43,200	12%	142,000	20%	943,600	23%
TN	50,500	50%	149,400	52%	751,700	59%
VA	27,600	9%	81,200	12%	410,100	14%
WV	1,700	19%	4,600	24%	22,500	22%
Unit	509,300		1,640,500	7%	9,877,400	7%
CENTRAL						
AR	37,700	15%	114,400	18%	777,000	16%
CO	16,700	8%	49,200	13%	236,900	14%
KS	37,100	8%	135,000	10%	845,700	12%
MO	26,900	26%	80,900	26%	490,400	35%
MT	2,000	41%	4,500	39%	14,700	25%
NE	15,700	10%	52,200	11%	291,600	12%
NM	8,400	19%	33,200	26%	246,100	35%
ND	5,500	35%	17,900	43%	79,100	50%
OK	25,600	19%	81,200	34%	447,700	35%
SD	9,100	23%	28,600	21%	136,000	23%
TX	293,300	10%	1,184,100	11%	6,718,500	10%
WY	2,800	30%	6,100	35%	29,900	47%
Unit	480,800		1,787,200	8%	10,313,700	7%
WESTERN						
AZ	42,700	5%	142,600	8%	941,400	9%
CA	79,900	6%	235,100	8%	1,195,400	8%
ID	10,400	17%	27,300	19%	99,500	17%
NV	5,200	21%	17,800	37%	71,300	50%
OR	6,800	14%	19,700	19%	62,800	17%
UT	12,400	14%	36,200	20%	95,000	16%
WA	5,800	29%	14,700	32%	56,900	21%
Unit	163,200		493,300	5%	2,522,200	5%
U.S.	1,153,300 [1]		3,921,000	5%	22,713,300	5%

[1]This 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, total bag, and confidence intervals for each from Harvest Information Program surveys for the 2003-04 season.

Management Unit	Hunters	95% CI	Days hunted	95% CI	Birds bagged	95% CI
EASTERN						
AL	49,000	10%	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%
Unit	466,700		1,456,900	12%	8,078,500	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.	1,033,100 [1]		3,359,100	7	18,213,200	5%

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