Mourning Dove
Population Status, 2007

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Abstract: This report summarizes Mourning Dove Call-count Survey (CCS) information on numbers of mourning doves heard and seen gathered over the last 42 years within the conterminous United States. Between 2006 and 2007, the average number of doves heard per route increased significantly in the Eastern Management Unit, but did not change significantly in the Central and Western Units. Over the most recent 10-year interval, no significant trend was indicated for doves heard in either the Eastern or Western Management Units while the Central Unit showed a significant decline. Over the 42-year period, all 3 units exhibited significant declines in mourning doves heard. In contrast, over the 10-year period, no significant trends were found in any of the three Management Units using the metric of doves seen. Over 42 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 treaties with Great Britain (for Canada) and Mexico (U.S. Department of the Interior 1988).   These treaties recognize sport hunting as a legitimate use of a renewable migratory bird resource. In recent years, less than 5% of the fall population of mourning doves was estimated to have been harvested annually. As one of the most abundant migratory bird 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). 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).

POPULATION MONITORING

Call-count Survey

The Mourning Dove Call-count Survey (CCS) 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
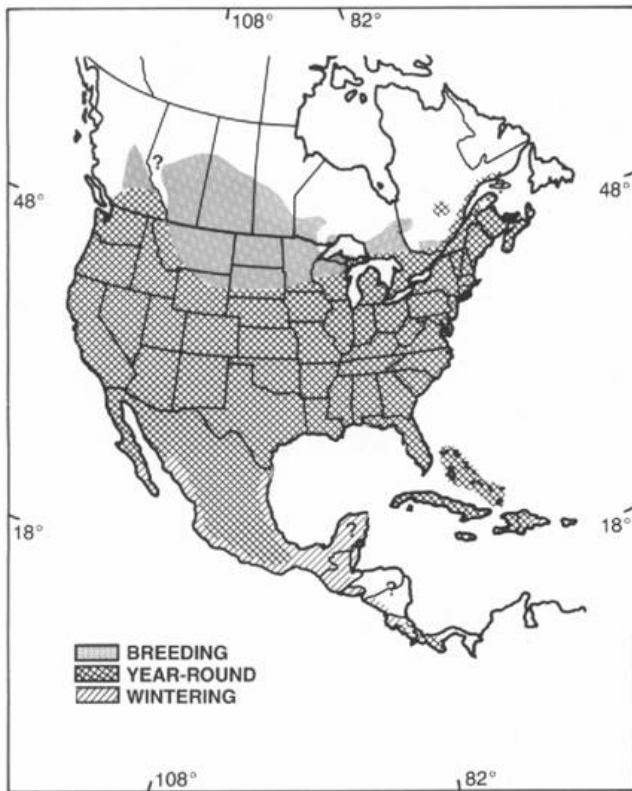
Fig. 1. Breeding and wintering ranges of the mourning dove (adapted from Mirarchi and Baskett 1994).

routes, stratified by physiographic region (Fenneman 1931, Dolton 1993 p. 236). The total number of doves heard on each route is used to determine trends in populations and to develop an index of population size during the breeding season. Indices of 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 and analyzed 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: those permitting dove hunting and those prohibiting dove hunting. Wisconsin became a hunting state for the first time in 2003 while Minnesota became a hunting state 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. Rhode Island, a small hunting state surrounded by nonhunting states, was included in this nonhunting group of states for analysis.

Each call-count route is usually located on secondary roads and has 20 listening stations spaced at 1-mile intervals. At each stop, for a three minute period, 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 surveyed 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.

The Breeding Bird Survey

The North American Breeding Bird Survey (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. At each stop, a 3-minute count is conducted whereby every bird seen within a 0.25 radius or heard is recorded. Surveys start one-half hour before local sunrise and take about 5 hours to complete. Data for birds heard and seen at stops are combined for BBS analyses while the CCS data are analyzed separately.

Harvest 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. Thus, the data were of limited use at a management unit level. Although those data are no longer used, a summary provided by Sadler (1993) is reviewed in the results section of this report for historical purposes.
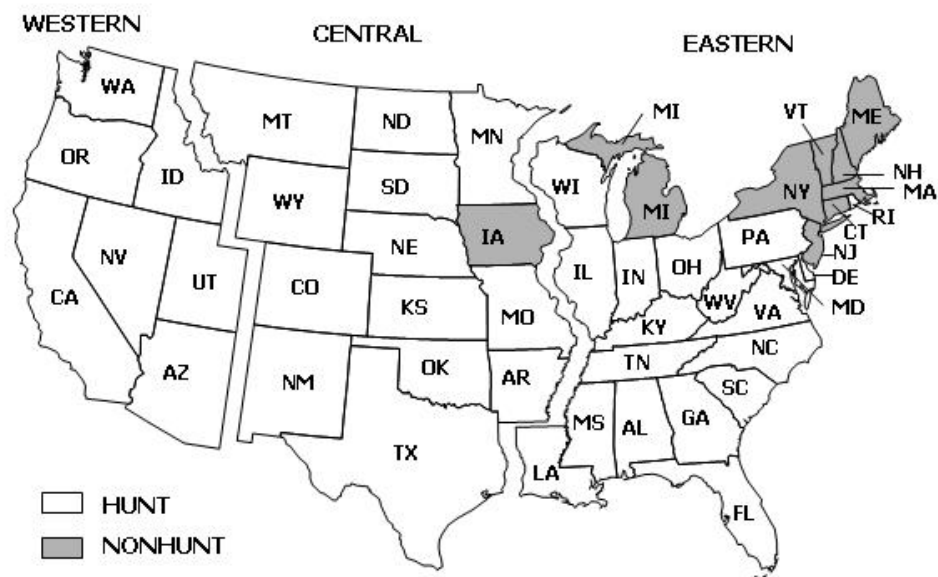
Fig. 2. Mourning dove management units with 2006 hunting and nonhunting states.

To remedy problems associated with state surveys, the U.S. Fish and Wildlife Service (Service) and state wildlife agencies initiated the national, cooperative Harvest Information Program (HIP) 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 HIP, 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 and hunter effort in each state (U.S. Fish and Wildlife Service 2005). All states except Hawaii are participating in the Program. Results for the past 2 years are included in this report.

ANALYTICAL METHODS

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 bootstrapping route trends (Geissler and Sauer 1990).

We estimated the annual change, or trend, in doves heard for each area over the most recent 2- and 10-year intervals and for the entire 42-year period. Additionally, we estimated trends in doves seen over the 10- and 42-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

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were determined for state and management units by finding the deviation between observed counts on a route and those predicted 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. 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 2006 to 2007, a short-term trend was calculated. The percent change estimated from this short-term trend analysis is the best estimator of annual change. However, these short-term trends estimated from the breeding population indices (which were derived from residuals of the long-term trends) will be less precise. The annual index value incorporates data from a large number of routes that are not comparable between 2006 and 2007 (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 2007 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 2006 and 2007.

CALL-COUNT SURVEY RESULTS

Eastern Management Unit

The Eastern Management Unit (EMU) includes 27 states comprising 30% of the land area of the contiguous United States. Dove hunting is permitted in 19 states, representing 80% of the land area of the unit (Fig. 2).

2006-2007 Population Distribution.—North Carolina had the highest count in the Unit with an average of 43 doves heard per route over the 2 years (Fig. 3). The North Atlantic states and New Jersey averaged <10 per route.
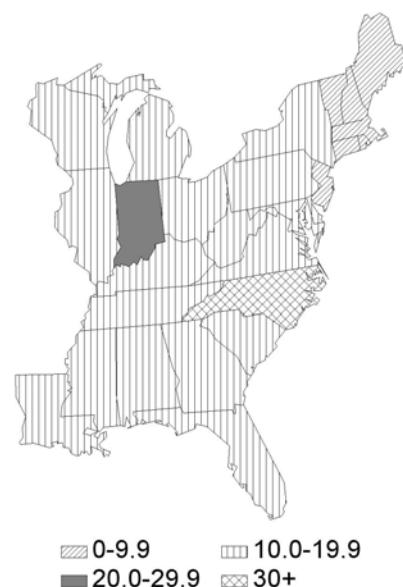
Fig. 3. Mean number of mourning doves heard per route by state in the Eastern Management Unit, 2006–2007.

All other states had mean counts in the range of 10-20 doves heard per route with the exception of Indiana, which had an average of 21 heard.

2006 to 2007 Population Changes.—The average number of doves heard per route in this Unit increased significantly (7.1%) (Table 1). The index increased significantly between years in the combined hunting states (9.6%), but did not change significantly in the combined nonhunting states (-3.5%).

The 2007 population index of 17.3 doves heard per route for the Unit is slightly above the predicted estimate of 15.9 based on the long-term estimate (Fig. 4, Table 3). In the hunting states, the index of 18.0 is also above the predicted estimate of 16.6 and, in the nonhunting states, the index of 14.1 is above the predicted estimate of 13.2.

The number of doves heard increased significantly in Illinois, Kentucky, and Virginia (Table 1). No significant changes were detected for the other states.

Population Trends: 10 and 42-year.—Over the most recent 10 years, there was no significant trend in the number of doves heard in either of the 2 groups of combined states or the Unit as a whole (Table 1). For the 42-year period, a declining trend was found in both the combined hunting states and the Unit while no 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

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MEAN PER ROUTE
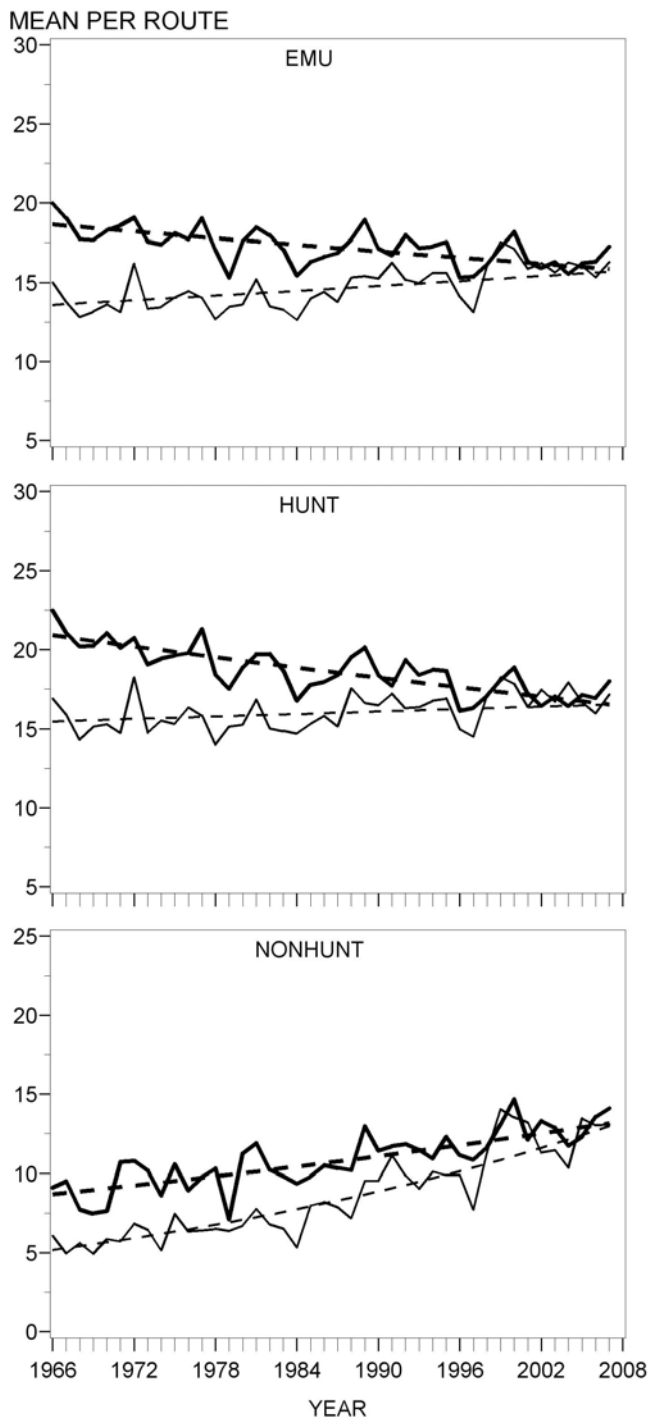
Fig. 4. Population indices and trends of breeding mourning doves in the Eastern Management Unit (EMU), combined EMU hunting states (HUNT), and combined nonhunting states (NONHUNT), 1966-2007. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

over 10 years indicated a significant increasing trend for the combined nonhunting states while no trend was indicated for the combined hunting states or the Unit
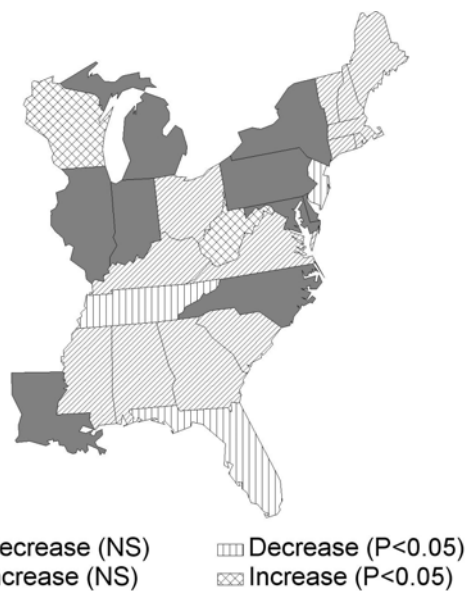
Fig. 5. Trends in number of mourning doves heard per route by state in the Eastern Management Unit, 1998–2007.
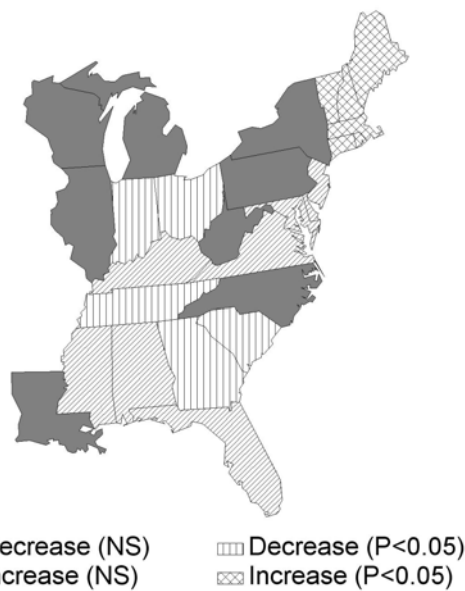
Fig. 6. Trends in the number of mourning doves heard per route by state in the Eastern Management Unit, 1966-2007.

(Table 2). Over 42 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 (42-year interval) and Table 1. Over 10 years, a significant increase in doves heard was found for Wisconsin and West Virginia while Florida, Tennessee, and New Jersey showed significant
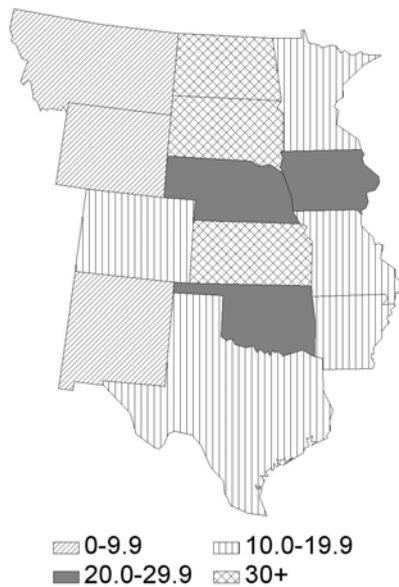
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Fig. 7. Mean number of mourning doves heard per route by state in the Central Management Unit, 2006-2007.

Fig. 8. Population indices and trends of breeding mourning doves in the Central Management Unit, 1966-2007. Heavy solid line= doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

declines. Between 1966 and 2007, a significant increase in doves heard was noted in New England while a significant downward trend was noted in Georgia, Indiana, Ohio, South Carolina, and Tennessee.

Central Management Unit

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

2006-2007 Population.—Kansas, North Dakota, and South Dakota had the highest average number of doves heard per route over the 2 years (33, 33, and 32, respectively) (Fig. 7). Historically, these states 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 heard per route. The remaining states had intermediate values (Fig. 7).

2006 to 2007 Population Changes.—The average number of doves heard per route in the Unit did not change significantly between the 2 years (-4.9%) (Table 1). The 2007 index for the Unit of 20.4 doves heard per route is below the predicted long-term trend estimate of 21.2 (Fig. 8, Table 3). The population increased significantly in New Mexico while it decreased significantly in North Dakota. No significant changes were found in any of the other states (Table 1).

Fig. 9. Trends in number of mourning doves heard per route by state in the Central Management Unit, 1998-2007.

Population Trends: 10 and 42-year.—A significant decline in doves heard was indicated for the Unit over both the 10- and 42-year 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. Iowa showed a significant increase
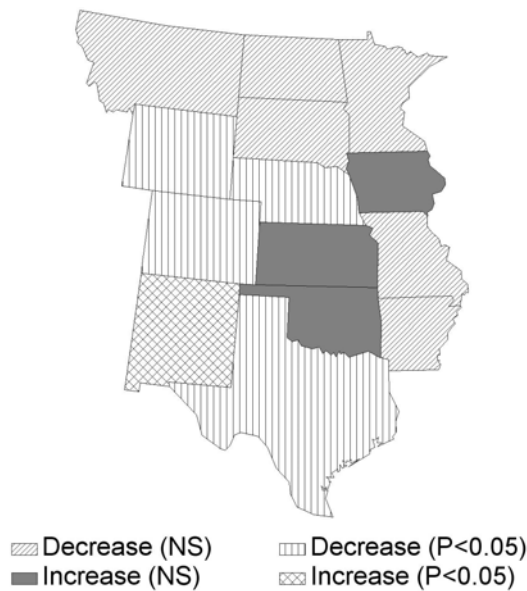
Fig. 10. Trends in mourning doves heard per route by state in the Central Management Unit, 1966-2007.

while Nebraska, North Dakota, Texas, and Wyoming had a significant decline during this time. Fig. 10 portrays trends over 42 years. New Mexico showed a significant increase in doves heard while a significant downward trend was found in Colorado, Nebraska, Texas, and Wyoming (Table 1).

Western Management Unit

Seven states comprise the Western Management Unit (WMU) and represent 24% of the land area of the contiguous United States. All states within the unit permit mourning dove hunting (Fig. 2).

2006-2007 Population Distribution.—Arizona averaged 15 doves heard per route (Fig. 11). The other states in the Unit averaged < 10 birds per route.

2006 to 2007 Population Changes.—The average number of doves heard per route did not change significantly between years (-7.7%; Table 1). The 2007 population index of 8.7 doves heard per route is nearly the same as the predicted count of 8.4 based on the long-term trend estimate (Fig. 12, Table 3). The number of doves heard per route increased significantly in Oregon and decreased significantly in Arizona (Table 1). No significant differences were found in other states.

Population Trends: 10 and 42-year.—Unit-wide, no

Fig. 11. Mean number of mourning doves heard per route by state in the Western Management Unit, 2006-2007.
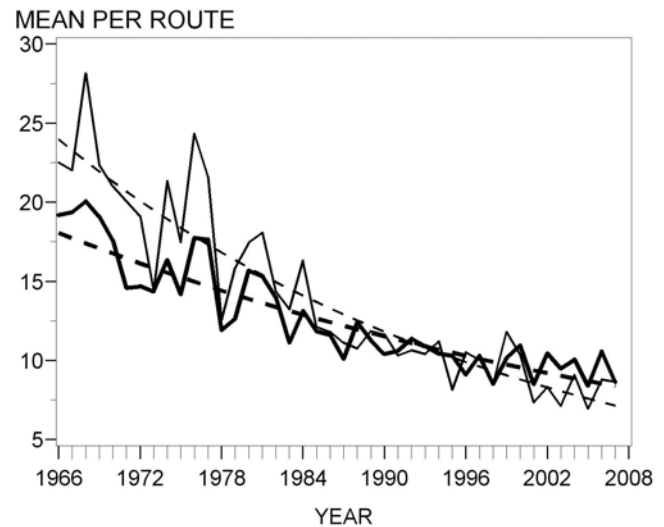
Fig. 12. Population indices and trends of breeding mourning doves in the Western Management Unit, 1966-2007. Heavy solid line = doves heard; light solid line = doves seen. Light and heavy dashed lines = predicted trends.

significant trend in numbers of doves heard was indicated over the most recent 10 years although a significant decline was apparent over 42 years (Table 1). Analyses of doves seen showed the same pattern (Table 2).

Trends by state for doves heard are illustrated in Figs. 13 and 14, and Table 1. Oregon and Washington showed a significant increase over 10 years while California showed a significant decline. Between 1966 and 2007,
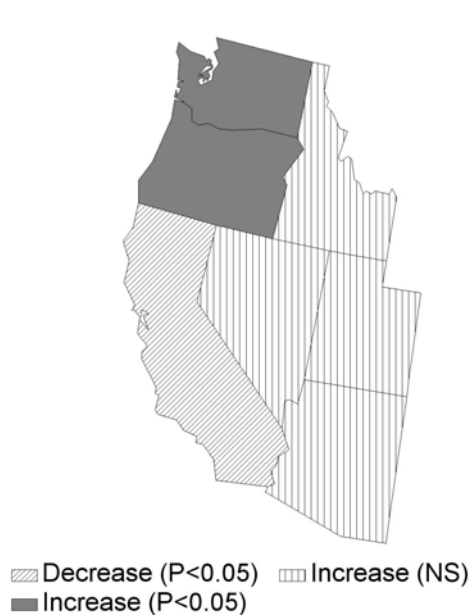
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Fig. 13. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1998-2007.

Fig. 14. Trends in number of mourning doves heard per route by state in the Western Management Unit, 1966-2007.

Arizona, California, Nevada, and Utah showed significant declines.

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 1966-2006 BBS trend information in this report to allow comparisons to those from CCS results over the same time period (Dolton and Rau 2006). Sauer et al. (1994) discussed the differences in the methodology of the 2 surveys. 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 (1997-2006) and over 41 years (1966-2006) are presented in Table 4.

In general, trends indicated by the BBS tend to indicate fewer declines than the CCS. 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 in the EMU, 1997-06, there was no trend indicated with the CCS for the combined hunting states, combined nonhunting states, or the Unit

as a whole. However, for the BBS, there was a significant increase in the number of doves in the combined hunting states and the Unit as a whole, and no trend in the

combined nonhunting states. In the CMU, the CCS showed a significant decline while the BBS showed no trend. In the WMU, both surveys showed no significant trend.

Over 41 years in the Eastern Unit, the CCS analyses indicated a significant decline. In contrast, the BBS showed a significant increase. For the combined hunting states of the EMU, the CCS showed a significant decline compared with no trend with the BBS. In the nonhunting states of the EMU, the CCS showed no trend while the BBS indicated a significant increasing trend. In the CMU, both the CCS and BBS indicated a significant decline. In the Western Management Unit, a significant decline was indicated by the CCS, but the BBS showed no significant trend.

HARVEST SURVEY RESULTS

State Surveys

According to Sadler (1993), mourning dove harvest in the EMU was relatively constant from 1966-87, with between 27.5 and 28.5 million birds taken. A survey

conducted in 1989 indicated that 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 declining. However, the mourning dove remains an extremely important game bird, as more doves are harvested annually 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)

Preliminary results of the mourning dove harvest survey for the 2005-06 and 2006-07 hunting seasons are presented in Tables 5 and 6, respectively. The total estimated harvest for the 2006-07 season by management unit and for the U.S. are as follows: Eastern: $8,155,400 \pm 6\%$; Central: $8,887,000 \pm 9\%$; Western: $2,202,900 \pm 8\%$; and, U.S.: $19,245,300 \pm 5\%$. 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. Furthermore, HIP estimates are not directly comparable to the early estimates from the state surveys because they were derived from different sampling frames. The reliability of the HIP 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 Surveys is continuing to work with states to improve the accuracy and precision of the harvest estimates.

ACKNOWLEDGMENTS

LITERATURE CITED

Aldrich, J.W. 1993. Classification and distribution. Pages 47-54 in T.S. Baskett, M.W. Sayre, R.E. Tomlinson, and R.E. Mirarchi, eds., Ecology and management of the mourning dove. Stackpole Books, Harrisburg, Pennsylvania, USA.

Dolton, D.D. 1993. The call-count survey: historic development and current procedures. Pages 233-252 in T.S. Baskett, M.W. Sayre, R.E. Tomlinson, and R.E. Mirarchi, eds., Ecology and management of the mourning dove. Stackpole Books, Harrisburg, Pennsylvania, USA.

Dolton, D.D. and R. D. Rau. 2006 Mourning dove breeding population status, 2006 U.S. Fish and Wildlife Service, Laurel, Maryland, USA.

Dunks, J.H., R.E. Tomlinson, H.M. Reeves, D.D. Dolton, C.E. Braun and T.P. Zapatka. 1982. Mourning dove banding analysis, Central Management Unit, 1967-77. Special Scientific Report--Wildl. No. 249. U.S. Fish and Wildlife Service, Washington, D.C., USA.

Fenneman, N.M. 1931. Physiography of western United States. McGraw Hill Book Co., New York. 534 pp.

Foote, L.E. and H.S. Peters. 1952. Pages 1-2 in Investigations of methods of appraising the abundance of mourning doves. U.S. Fish and Wildlife Service, Special Scientific Report--Wildlife 17.

Geissler, P.H. and J.R. Sauer. 1990. Topics in route regression analysis. Pages 54-57 in J.R. Sauer and S. Droege, eds. Survey designs and statistical methods for the estimation of avian population trends. U.S. Fish and Wildlife Service, Biological Report 90(1).

Kiel, W.H. 1959. Mourning dove management units, a progress report. U.S. Fish and Wildlife Service, Special Scientific Report--Wildlife 42.

Kiel, W.H. 1961. The mourning dove program for the future. Transactions of the North American Wildlife and Natural Resources Conference 26:418-435.

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

McClure, H.E. 1939. Cooing activity and censusing of the mourning dove. Journal of Wildlife Management 3:323-328.

Mirarchi, R.E. and T.S. Baskett. 1994. Mourning dove (Zenaida macroura). In A. Poole and F. Gill, eds., The birds of North America, No. 117. The Academy of Natural Sciences, Philadelphia and The American Ornithologists' Union, Washington, D.C., USA.

Peterjohn, B.G., J.R. Sauer and W.A. Link. 1994. The 1992 and 1993 summary of the North American breeding bird survey. Bird Populations 2:46-61.

Sadler, K.C. 1993. Mourning dove harvest. Pages 449-458 in T.S.Baskett, M.W. Sayer, R.E. Tomlinson and R.E. Mirarchi, eds., Ecology and management of the mourning dove. Stackpole Books, Harrisburg, Pennsylvania, USA.

Sauer, J.R. and P.H. Geissler. 1990. Annual indices from route regression analyses. Pages 58-62 in J.R. Sauer and S. Droege, eds. Survey designs and statistical methods for the estimation of avian population trends. U.S. Fish and Wildlife Service, Biological Report. 90(1).

Sauer, J.R., D.D. Dolton, and S. Droege. 1994. Mourning dove population trend estimates from Call-count and North American Breeding Bird Surveys. Journal of Wildlife Management. 58(3):506-515.

Tomlinson, R.E., D.D. Dolton, H.M. Reeves, J.D. Nichols and L.A. McKibben. 1988. Migration, harvest, and population characteristics of mourning doves banded in the Western Management Unit; 1964-1977. Fish and Wildlife Technical. Report 13, U.S. Fish and Wildlife Service, Washington, D.C., USA.

U.S. Department of the Interior. 1988. Final Supplemental Environmental Impact Statement: Issuance of annual regulations permitting the sport hunting of migratory birds. U.S. Fish and Wildlife Service. Washington, D.C., USA.

U. S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census. 1993. 1991 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Government Printing Office, Washington, D.C., USA.

U. S. Department of the Interior, Fish and Wildlife Service and U.S. Department of Commerce, Bureau of the Census. 1997. 1996 National survey of fishing, hunting, and wildlife-associated recreation. U.S. Government Printing Office, Washington, D.C., USA.

U. S. Fish and Wildlife Service. 2005. Migratory bird harvest information, 2004: preliminary estimates. U. S. Department of the Interior, Washington, D.C. USA.

Table 1. Trends (% change[a] per year as determined by linear regression) in number of mourning doves <u>heard</u> along call-count survey routes, 1966-2007.

	2006-2007[b]				10 year (1998-2007)					42 year (1966-2007)				
	N	% Change[c]		90% CI		N	% Change[c]		90% CI		N	% Change[c]		90% CI	
EASTERN UNIT															
Hunt															
AL	27	-1.8		-13.9	10.3	31	-1.5		-3.0	0.0	45	-0.8	*	-1.5	0.0
DE/MD	12	9.1		-9.1	27.3	15	0.5		-2.2	3.2	20	-1.2		-2.7	0.2
FL	18	-1.5		-30.3	27.3	24	-4.9	***	-7.5	-2.4	29	-0.6		-1.5	0.2
GA	19	-5.7		-32.0	20.7	23	-2.0		-4.2	0.2	31	-1.1	***	-1.7	-0.5
IL	13	18.0	*	3.3	32.7	20	1.7		-0.9	4.3	22	0.4		-0.8	1.6
IN	15	16.8		-2.8	36.4	15	1.2		-2.0	4.4	18	-1.3	**	-2.3	-0.3
KY	17	34.5	*	2.9	66.0	20	0.0		-1.1	1.0	26	-0.4		-1.5	0.7
LA	15	24.3		-1.7	50.3	19	0.0		-2.6	2.6	23	1.2	*	0.1	2.4
MS	18	23.3		-8.4	55.0	23	-2.7	*	-5.0	-0.5	31	-1.9	*	-3.5	-0.4
NC	20	-0.4		-8.2	7.4	21	0.9		-0.9	2.7	24	0.2		-0.7	1.0
OH	34	3.6		-10.5	17.6	37	-0.1		-1.9	1.7	57	-1.0	***	-1.6	-0.4
PA	13	13.1		-4.3	30.5	18	0.6		-2.1	3.4	19	1.0		-0.4	2.4
SC	17	16.8		-0.3	34.0	21	-3.1	*	-5.7	-0.5	27	-1.2	**	-2.1	-0.4
TN	15	-0.4		-20.3	19.6	24	-3.0	**	-5.3	-0.8	34	-1.7	***	-2.7	-0.7
VA	22	31.3	*	3.8	58.9	33	-1.1		-3.2	0.9	33	-1.7		-3.4	0.0
WI	16	11.8		-8.5	32.0	22	4.4	***	2.8	6.1	23	1.1		-0.2	2.3
WV	10	3.1		-39.0	45.3	11	2.6	***	1.3	3.8	12	1.6		-0.1	3.2
Subunit	301	9.6	***	4.1	15.2	377	-0.5		-1.2	0.1	474	-0.6	***	-0.9	-0.2
Nonhunt															
MI	14	-8.3		-18.8	2.2	20	3.2		-0.9	7.2	23	0.8		-0.7	2.4
N.England[d]	26	13.8		-4.2	31.9	42	-1.0		-3.4	1.5	76	1.1	**	0.4	1.8
NJ	8	-20.9		-43.4	1.6	11	-3.7	**	-5.5	-1.9	20	-2.2		-4.7	0.3
NY	15	2.9		-11.6	17.3	18	4.0	*	0.6	7.3	22	2.1		0.0	4.3
Subunit	63	-3.5		-11.6	4.6	91	2.0		-0.6	4.5	141	1.0	*	0.0	2.0
Unit	364	7.1	**	2.4	11.9	468	-0.2		-0.8	0.5	615	-0.4	**	-0.7	-0.1
CENTRAL UNIT															
AR	12	12.0		-26.1	50.1	20	0.2		-3.2	3.6	21	-0.8		-1.9	0.3
CO	11	8.7		-22.3	39.8	15	-1.5		-4.1	1.0	21	-0.9	**	-1.6	-0.3
IA	12	-6.5		-21.0	8.0	17	2.9	**	1.2	4.6	19	0.2		-0.6	1.0
KS	18	-5.6		-15.1	3.9	29	0.2		-2.4	2.9	36	0.1		-0.7	0.8
MN	7	3.3		-16.7	23.3	12	-3.4		-8.6	1.8	13	-1.9	*	-3.4	-0.3
MO	12	5.5		-18.2	29.3	20	0.3		-1.6	2.1	28	-1.8	*	-3.3	-0.3
MT	9	14.2		-5.2	33.5	19	-2.2		-7.2	2.7	29	-1.7	*	-3.4	-0.1
NE	18	8.3		-7.5	24.2	24	-2.9	**	-4.8	-1.1	28	-1.1	**	-1.7	-0.4
NM	15	35.7	**	18.0	53.4	28	4.6		-0.7	9.8	31	1.5	**	0.4	2.6
ND	24	-20.8	**	-36.4	-5.2	27	-2.6	***	-3.8	-1.4	30	-0.7		-1.8	0.4
OK	15	-3.1		-13.1	6.9	16	-0.2		-3.0	2.6	25	0.7		-2.5	3.9
SD	16	-2.0		-29.7	25.8	21	0.3		-2.8	3.5	30	-0.6		-2.0	0.7
TX	114	-8.1		-17.0	0.7	143	-4.5	***	-5.6	-3.4	212	-0.9	**	-1.6	-0.2
WY	9	-4.9		-70.9	61.1	17	-7.0	**	-11.2	-2.8	24	-2.5	**	-4.5	-0.6
Unit	292	-4.9		-10.0	0.2	408	-2.7	***	-3.4	-2.0	547	-0.7	***	-1.1	-0.3
WESTERN UNIT															
AZ	31	-20.3	*	-37.0	-3.7	54	0.1		-1.8	2.1	71	-0.9	**	-1.6	-0.3
CA	44	10.2		-4.5	24.9	61	-2.7	***	-4.2	-1.1	84	-2.5	***	-3.4	-1.5
ID	10	-3.1		-31.5	25.4	22	7.4	*	1.5	13.4	28	-1.0		-2.4	0.4
NV	10	-7.9		-39.7	23.9	21	2.9		-1.0	6.7	33	-3.3	***	-5.0	-1.6
OR	9	125.7	***	106.7	144.7	19	8.7	**	2.4	15.1	25	-1.5	*	-2.9	-0.2
UT	11	-11.4		-34.7	11.9	16	2.6		-0.4	5.6	20	-3.9	**	-6.4	-1.4
WA	14	3.5		-24.6	31.5	23	5.2	**	1.2	9.2	28	-2.1	*	-4.1	-0.1
Unit	129	-7.7		-17.6	2.1	216	0.2		-0.9	1.2	289	-1.9	***	-2.4	-1.3

[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., 42 years) may exaggerate the total change over the period.
[b] As stated in the *Estimation of Annual Indices* on page 3 of this report, the 2-year trend is the best estimate of the change between 2006 and 2007. This is because only data from comparable routes (those run by the same observer in both years) are used in the analysis. This change will differ from the change calculated from 2006 to 2007 using the annual indices because the index values are less precise, as they incorporate data from routes not surveyed in both years. The 2-year trend is useful in evaluating short-term change; however, the long-term trend is more relevant to management decision-making.
[c] *$P<0.1$; **$P<0.05$; ***$P<0.01$. 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.
[d] 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 <u>seen</u> along call-count survey routes, 1966-2007.

	10 year (1998-2007)					42 year (1966-2007)				
	N	% Change[b]		90% CI		N	% Change[b]		90% CI	
EASTERN UNIT										
Hunt										
AL	31	-2.1		-5.7	1.5	45	-1.5	**	-2.6	-0.3
DE/MD	15	0.7		-0.5	1.8	20	0.7		-0.7	2.1
FL	25	0.4		-3.4	4.2	29	3.4	***	2.2	4.6
GA	23	-1.3		-5.3	2.8	31	0.3		-0.8	1.5
IL	20	4.8	***	2.3	7.3	22	-0.6		-2.3	1.2
IN	15	1.2		-5.0	7.5	18	-1.8		-4.7	1.1
KY	20	-1.6		-4.4	1.2	24	1.1		-0.2	2.5
LA	18	1.8		-0.1	3.8	23	2.3	***	1.5	3.1
MS	22	-2.8		-5.7	0.1	31	-1.4		-3.2	0.4
NC	21	4.1	**	0.9	7.3	24	-0.1		-1.1	0.9
OH	37	-2.0		-4.4	0.3	57	0.7		-0.6	2.1
PA	18	-5.1	*	-9.0	-1.1	19	1.0		-0.8	2.7
SC	21	0.4		-4.5	5.2	27	1.3	**	0.3	2.2
TN	24	-1.4		-3.8	0.9	34	-0.9		-1.9	0.2
VA	32	1.6		-4.6	7.8	33	-1.0		-3.2	1.3
WI	21	5.9	**	1.8	10.1	23	3.3	***	2.2	4.4
WV	11	-1.9		-7.2	3.4	12	3.4	***	2.1	4.8
Subunit	374	0.2		-0.8	1.2	472	0.2		-0.5	0.8
Nonhunt										
MI	20	3.1	*	0.7	5.6	23	2.3	***	1.1	3.6
N.England[c]	41	1.5		-1.8	4.7	73	1.9	*	0.3	3.6
NJ	11	1.4		-4.0	6.7	20	-0.7		-2.5	1.0
NY	18	-2.3		-7.0	2.4	22	3.1		0.1	6.0
Subunit	90	2.2	**	0.4	4.0	138	2.3	***	1.3	3.2
Unit	464	0.5		-0.4	1.4	610	0.3		-0.2	0.9
CENTRAL UNIT										
AR	20	2.9	*	0.2	5.5	21	-1.0	**	-1.8	-0.3
CO	15	-0.8		-5.3	3.7	20	-0.2		-1.5	1.2
IA	17	3.9		0.1	7.7	19	0.4		-0.8	1.6
KS	29	2.7	**	0.6	4.8	36	-0.3		-1.0	0.5
MN	13	-5.0	*	-9.3	-0.7	14	-1.0		-2.7	0.7
MO	20	-1.5		-4.7	1.8	28	-3.1	***	-4.7	-1.4
MT	21	4.2		-2.9	11.4	29	1.3		-0.1	2.8
NE	24	-2.1		-4.7	0.6	28	-0.8		-2.3	0.8
NM	27	10.6	***	6.3	14.8	31	1.2		-1.4	3.8
ND	27	-4.1	***	-6.2	-2.0	30	0.0		-1.2	1.2
OK	16	2.0		-0.2	4.1	25	0.5		-0.6	1.6
SD	21	-0.7		-3.8	2.4	30	-1.0		-2.4	0.5
TX	144	-1.9	*	-3.4	-0.3	213	0.7	**	0.1	1.3
WY	14	-4.8	*	-8.9	-0.7	22	-3.4	*	-6.2	-0.5
Unit	408	-1.0		-2.0	0.1	546	0.1		-0.4	0.5
WESTERN UNIT										
AZ	51	-4.8	**	-8.7	-0.9	72	-4.0	***	-5.8	-2.3
CA	57	0.1		-2.0	2.2	83	-2.3	***	-3.3	-1.3
ID	21	10.2	**	3.8	16.6	28	-2.3		-4.9	0.3
NV	19	9.6		-0.1	19.4	33	-1.4		-4.3	1.5
OR	19	-1.5		-7.3	4.2	23	-4.5	**	-7.1	-2.0
UT	15	-8.2		-16.8	0.4	20	-5.3	**	-9.0	-1.6
WA	23	0.7		-5.0	6.4	25	0.7		-1.7	3.1
Unit	205	0.7		-1.8	3.1	284	-2.9	***	-3.8	-2.1

[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., 42 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 <u>heard</u> along Call-count routes, 1966-2007.

Management unit/state	Year									
	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975
EASTERN UNIT										
Hunt										
AL	26.6	23.7	21.4	21.6	21.9	18.0	25.7	22.5	17.0	21.7
DE/MD	15.7	19.4	13.6	14.4	17.8	15.3	16.6	16.5	17.6	12.6
FL	13.6	12.9	11.0	11.7	14.8	12.3	12.7	12.8	15.0	15.4
GA	30.4	28.5	24.4	26.1	33.0	26.0	24.7	27.1	28.0	30.4
IL	22.4	19.3	23.0	20.0	23.0	21.1	21.7	21.3	18.0	25.1
IN	36.5	33.7	33.1	32.2	31.1	42.0	36.9	33.0	31.5	33.3
KY	23.9	21.7	21.1	22.2	26.6	23.8	20.1	23.8	27.7	19.5
LA	10.1	10.3	9.7	11.3	7.0	10.2	11.2	8.7	10.2	10.7
MS	40.5	34.8	29.4	27.0	30.0	30.5	33.9	30.3	24.3	25.6
NC	34.8	28.2	29.8	42.6	49.3	28.7	23.3	44.4	25.3	14.3
OH	24.5	23.1	20.9	23.8	23.5	24.4	25.4	20.2	24.6	37.6
PA	8.6	9.2	8.5	8.1	5.3	6.1	8.6	5.6	8.3	5.8
SC	33.8	36.9	37.4	36.1	34.0	29.7	26.4	30.1	28.0	27.7
TN	32.8	23.9	24.5	24.2	32.8	23.2	29.2	22.2	23.7	22.6
VA	24.7	20.8	23.5	20.8	26.5	21.5	12.9	15.1	20.8	23.3
WI	9.7	12.6	12.6	9.7	10.5	15.2	16.0	10.7	11.3	14.3
WV	6.4	5.4	5.6	6.0	5.5	5.0	6.6	3.9	4.2	2.4
Subunit	22.5	21.1	20.2	20.2	21.1	20.1	20.8	19.1	19.4	19.6
Nonhunt										
MI	13.1	14.2	9.3	9.5	7.7	15.2	16.1	13.0	11.1	12.5
N. England[b]	6.3	6.8	6.2	5.3	6.2	6.5	7.1	8.3	5.2	5.0
NJ	20.8	17.7	22.0	20.2	27.3	25.6	26.9	23.8	23.1	16.6
NY	6.1	6.1	5.8	5.8	7.1	8.3	6.6	6.8	7.1	12.7
Subunit	9.1	9.5	7.7	7.5	7.7	10.7	10.8	10.2	8.6	10.6
Unit	20.0	19.1	17.7	17.7	18.3	18.6	19.1	17.6	17.4	18.1
CENTRAL UNIT										
AR	22.1	23.0	22.1	21.2	23.0	23.0	21.6	24.3	22.4	21.5
CO	24.3	23.8	21.7	29.6	29.6	21.5	27.3	16.8	26.8	19.6
IA	32.1	28.9	31.4	28.2	20.4	25.1	33.7	31.8	25.4	23.6
KS	46.8	48.2	50.0	50.6	46.7	47.6	53.2	47.3	47.1	45.2
MN	32.6	26.1	28.0	20.7	16.4	23.5	27.1	20.5	28.4	31.0
MO	37.5	35.4	44.5	27.1	37.3	31.4	42.7	32.1	27.5	32.6
MT	28.7	26.5	20.8	23.1	18.5	26.2	20.9	15.0	17.5	23.8
NE	47.4	41.6	52.9	51.7	50.0	47.3	45.3	43.4	44.9	42.2
NM	12.8	9.4	13.3	10.2	10.0	9.5	11.0	7.9	9.7	12.2
ND	44.0	41.9	57.3	47.5	41.9	42.8	44.3	48.3	46.2	33.4
OK	17.6	21.7	25.7	26.0	19.7	15.5	25.7	24.3	25.7	23.3
SD	53.3	33.4	45.7	38.8	46.3	40.8	40.5	42.8	51.2	43.3
TX	28.9	23.9	23.3	21.0	22.8	21.7	28.9	22.9	24.1	21.7
WY	19.3	20.1	10.7	17.4	16.8	9.6	13.2	13.3	18.9	16.8
Unit	30.6	27.5	28.3	27.0	26.1	25.6	29.1	24.3	27.2	26.6
WESTERN UNIT										
AZ	28.5	28.7	25.6	30.6	30.6	20.7	23.3	28.1	24.4	26.8
CA	28.8	27.2	25.1	24.8	24.2	18.2	22.1	21.2	23.0	19.4
ID	13.1	13.3	12.5	13.5	12.6	10.3	9.8	12.4	10.9	7.6
NV	9.5	8.9	21.3	15.3	10.9	6.7	9.0	6.4	8.6	5.7
OR	14.4	9.6	11.4	10.4	8.0	7.0	6.9	6.9	12.2	9.4
UT	24.4	37.3	18.8	17.8	20.6	28.8	16.7	14.4	16.4	17.6
WA	12.2	17.9	16.8	13.4	13.6	16.1	11.5	10.5	13.3	14.4
Unit	19.2	19.4	20.1	19.1	17.6	14.6	14.7	14.4	16.3	14.2

[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 42-year period.
[b] New England consists of CT, ME, MA, NH, RI, and VT.

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Table 3. Continued.

Management unit/state	Year									
	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
EASTERN UNIT										
Hunt										
AL	20.9	23.0	25.2	24.2	24.2	23.1	23.5	23.6	19.7	25.1
DE/MD	15.5	14.2	15.1	14.7	14.0	13.4	14.0	9.9	11.3	12.4
FL	14.2	15.6	12.2	13.2	10.5	9.2	10.8	12.6	8.6	11.0
GA	23.9	24.8	27.2	23.7	24.1	26.7	28.6	25.6	20.8	26.6
IL	24.6	26.3	20.3	17.6	18.0	20.3	24.8	25.5	20.7	17.8
IN	33.6	37.6	20.4	21.7	27.5	31.8	22.6	19.4	21.2	18.6
KY	24.5	23.0	24.6	16.9	16.4	27.9	24.0	13.4	21.6	22.4
LA	10.8	8.9	10.4	8.9	12.4	10.6	13.3	12.3	11.7	10.5
MS	26.0	26.8	30.2	25.7	24.4	24.4	30.8	25.9	19.0	25.1
NC	17.5	46.9	25.1	29.7	28.8	28.4	23.9	28.2	31.6	22.0
OH	27.4	26.2	13.9	13.5	16.2	19.6	18.7	19.9	18.6	17.4
PA	5.8	4.7	5.8	6.4	7.7	9.2	8.8	8.7	8.0	8.8
SC	27.3	23.2	30.7	26.0	32.7	31.7	32.7	31.1	28.2	28.4
TN	22.3	24.4	30.1	20.6	22.4	18.9	25.4	19.6	16.8	21.6
VA	22.4	29.9	22.1	19.6	19.0	16.4	18.1	18.1	17.7	16.6
WI	14.5	19.1	7.7	11.4	14.8	20.0	11.3	13.3	10.4	10.8
WV	6.0	5.7	6.5	7.3	8.4	6.8	6.4	6.1	5.4	6.7
Subunit	19.8	21.3	18.4	17.5	18.9	19.7	19.7	18.7	16.8	17.8
Nonhunt										
MI	12.7	10.9	12.5	7.3	13.6	15.6	11.4	10.1	10.9	12.1
N. England[b]	4.6	8.7	7.3	6.0	7.5	9.1	7.4	7.9	6.7	7.4
NJ	20.8	22.8	18.1	19.3	18.0	14.6	16.9	20.2	12.7	12.7
NY	7.5	7.5	9.2	6.2	11.2	9.4	10.2	9.4	9.4	8.5
Subunit	8.9	9.8	10.3	7.1	11.3	11.9	10.2	9.8	9.4	9.8
Unit	17.7	19.1	17.0	15.3	17.6	18.5	18.0	17.1	15.4	16.3
CENTRAL UNIT										
AR	26.2	21.3	15.0	12.2	20.3	22.1	25.7	19.4	13.8	13.6
CO	27.8	25.7	28.3	23.5	27.1	30.5	29.6	16.3	20.3	24.2
IA	29.0	22.6	25.4	21.6	29.3	32.4	23.3	16.6	24.4	27.0
KS	49.7	47.1	37.0	54.1	59.1	56.5	53.9	60.8	48.2	62.4
MN	26.8	30.9	29.7	30.2	32.5	28.7	25.2	22.0	18.6	20.2
MO	28.9	33.6	21.5	20.5	32.2	27.3	24.0	23.3	22.3	21.3
MT	17.3	21.1	20.3	20.3	18.5	17.4	22.2	17.9	13.5	18.7
NE	47.6	48.1	39.5	42.2	53.7	51.0	49.6	45.2	43.0	44.2
NM	12.1	10.8	11.0	7.5	12.3	12.3	9.6	13.1	14.3	12.4
ND	53.6	44.1	46.5	43.3	48.8	48.9	45.7	43.6	34.0	44.2
OK	24.6	32.0	24.6	24.2	25.3	25.2	26.4	27.1	20.5	20.1
SD	46.4	40.7	43.9	43.0	43.1	38.8	46.3	39.9	44.5	41.7
TX	21.1	20.2	20.9	25.8	24.6	22.2	21.3	19.7	19.3	19.9
WY	15.7	9.9	16.2	12.6	11.4	12.5	16.2	11.0	10.0	11.7
Unit	27.3	26.1	25.7	25.2	28.3	27.5	27.4	24.2	22.6	24.7
WESTERN UNIT										
AZ	27.7	24.9	25.0	24.4	21.9	24.7	28.2	22.0	27.0	21.8
CA	23.2	17.8	16.0	12.4	21.0	17.4	21.5	13.3	18.5	13.1
ID	14.0	17.1	9.6	9.3	10.0	11.1	11.5	9.2	10.8	10.0
NV	9.3	9.5	5.6	8.3	12.2	8.9	5.1	4.6	4.5	5.8
OR	9.7	11.1	6.0	6.2	9.4	8.0	7.9	6.0	7.7	8.5
UT	20.1	23.5	10.4	12.7	15.3	20.2	10.8	12.2	13.6	9.0
WA	13.9	15.1	9.8	13.8	9.4	11.3	10.6	8.9	7.8	9.9
Unit	17.7	17.7	11.9	12.7	15.7	15.3	14.0	11.1	13.1	11.8

[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 42-year period.
[b] New England consists of CT, ME, MA, NH, RI, and VT.

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Table 3. Continued.

Management unit/state	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
EASTERN UNIT											
Hunt											
AL	22.8	20.2	22.3	19.1	17.9	16.5	19.1	20.7	21.4	22.5	17.3
DE/MD	14.9	13.0	12.1	16.9	8.2	12.6	16.2	10.9	13.4	12.1	11.3
FL	12.9	11.6	13.8	12.3	11.2	12.1	12.3	10.8	10.2	11.8	11.0
GA	23.8	24.8	25.0	25.3	26.0	21.6	30.4	18.8	21.8	26.0	21.8
IL	24.7	24.1	27.4	26.8	26.4	26.8	27.7	24.1	26.9	27.6	21.8
IN	24.8	25.0	30.1	25.5	27.8	28.1	24.8	26.2	31.1	25.2	21.6
KY	20.2	24.8	19.8	27.2	22.7	21.6	17.2	22.0	21.3	20.9	17.7
LA	9.6	13.7	10.2	15.8	11.2	11.4	15.3	11.7	12.8	14.6	12.0
MS	24.7	21.9	25.9	24.2	20.3	16.9	21.9	23.9	20.1	18.4	17.0
NC	30.9	30.0	27.7	32.5	29.6	25.0	24.5	25.4	25.6	27.9	28.4
OH	17.0	18.6	21.2	20.0	18.4	19.7	20.5	17.3	19.3	17.6	14.2
PA	9.4	10.6	7.1	9.1	9.2	9.3	10.3	11.4	10.8	10.4	10.2
SC	24.2	35.1	27.7	26.6	28.8	23.3	22.8	26.7	23.8	19.1	23.8
TN	16.3	20.0	19.7	17.7	15.5	18.8	18.4	16.1	19.8	18.1	15.9
VA	13.5	14.4	15.7	15.3	13.0	13.8	12.2	13.7	13.6	14.7	11.8
WI	11.7	7.7	18.2	18.3	14.6	13.2	20.2	19.4	16.0	13.6	12.4
WV	6.3	6.6	7.6	8.1	10.8	9.2	7.4	8.7	9.6	9.9	4.9
Subunit	18.0	18.4	19.5	20.2	18.4	17.7	19.4	18.4	18.7	18.7	16.1
Nonhunt											
MI	15.5	12.7	15.3	19.3	14.6	11.9	13.9	12.8	12.2	13.6	14.1
N. England[b]	7.9	7.6	7.0	7.4	8.2	9.0	9.5	9.9	9.0	11.3	7.8
NJ	15.0	13.7	13.3	16.3	12.7	15.7	10.1	16.0	13.8	10.4	13.4
NY	7.2	9.6	7.8	12.1	10.6	13.4	11.4	10.1	10.3	11.5	10.9
Subunit	10.5	10.4	10.2	13.0	11.4	11.7	11.8	11.5	10.9	12.3	11.2
Unit	16.6	16.9	17.7	18.9	17.2	16.7	18.0	17.2	17.3	17.6	15.3
CENTRAL UNIT											
AR	14.8	13.8	15.2	21.4	16.7	15.1	18.2	16.7	19.9	18.5	18.8
CO	23.2	24.7	26.8	30.1	27.1	18.0	13.7	13.1	23.3	19.5	14.6
IA	24.4	23.4	31.7	28.9	32.9	24.5	32.5	24.2	25.3	26.8	34.8
KS	43.0	46.7	54.1	48.9	42.7	59.6	58.1	39.3	52.8	63.1	33.3
MN	18.4	23.5	23.9	18.9	15.5	19.2	22.3	16.1	19.9	19.8	18.7
MO	22.2	24.9	25.1	24.7	20.1	21.9	23.1	22.4	27.1	23.7	23.2
MT	19.5	18.7	15.4	19.8	21.2	14.2	14.9	11.0	10.1	12.9	13.1
NE	36.9	36.4	36.3	40.4	40.1	40.9	38.4	40.5	37.6	41.2	34.3
NM	14.9	18.0	13.6	15.3	16.9	15.8	10.4	11.6	14.6	13.2	11.5
ND	40.0	45.5	42.8	44.1	42.5	46.8	49.8	43.1	37.2	38.9	40.6
OK	22.7	25.4	22.3	17.2	22.5	22.9	25.9	22.3	29.2	22.1	23.5
SD	38.8	33.9	40.2	43.3	44.9	47.4	38.1	34.3	37.3	38.2	39.3
TX	21.3	21.0	21.5	16.5	17.4	24.1	22.0	20.1	22.1	16.6	14.2
WY	14.5	11.7	7.2	9.1	9.1	9.7	10.2	7.5	10.0	7.4	8.9
Unit	24.9	25.6	24.5	24.4	24.4	24.8	23.7	20.7	24.0	22.4	20.6
WESTERN UNIT											
AZ	25.9	17.4	19.5	24.2	18.5	23.6	25.3	26.3	23.2	21.8	12.8
CA	15.1	11.6	15.5	11.4	11.5	11.2	12.2	14.7	12.1	11.6	12.1
ID	7.1	7.4	10.0	9.9	11.0	10.2	9.3	8.5	8.3	7.7	7.4
NV	3.8	4.4	6.1	5.3	3.7	4.9	4.1	3.5	3.2	5.3	4.9
OR	6.9	6.4	8.0	6.6	7.5	4.7	7.4	6.2	7.3	6.1	5.7
UT	12.4	10.8	11.1	11.6	9.9	9.0	11.5	9.6	9.9	6.5	7.4
WA	11.7	9.3	9.3	8.1	8.4	10.6	9.3	8.1	8.3	9.3	6.1
Unit	11.6	10.1	12.4	11.3	10.4	10.6	11.4	10.9	10.4	10.3	9.1

[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 42-year period.
[b] New England consists of CT, ME, MA, NH, RI, and VT.

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Table 3. Continued.

Management unit/state	Year										
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
EASTERN UNIT											
Hunt											
AL	16.3	18.2	17.5	18.7	17.7	20.7	15.9	18.1	18.2	18.6	18.0
DE/MD	9.4	13.0	9.2	8.8	8.8	7.4	11.7	12.0	11.1	10.7	12.8
FL	10.2	12.6	13.1	12.7	9.1	10.0	10.6	10.2	11.2	11.8	9.5
GA	18.8	18.1	18.3	16.1	22.4	12.3	19.6	18.4	20.1	19.0	16.7
IL	22.2	22.3	20.6	26.8	22.6	23.9	26.1	21.4	24.6	26.6	27.5
IN	21.4	21.6	22.4	24.4	21.4	19.3	19.3	21.2	24.4	19.0	22.7
KY	16.6	21.6	22.1	23.0	19.4	22.5	21.1	18.1	17.6	19.2	24.6
LA	12.1	13.7	14.3	17.3	18.4	14.5	16.8	13.7	16.4	11.6	17.9
MS	16.4	16.9	20.4	17.8	16.9	13.7	15.6	12.0	13.5	14.9	17.6
NC	31.2	30.7	31.4	37.3	41.5	35.1	33.9	29.5	28.2	34.2	31.6
OH	14.1	16.5	17.2	18.3	15.0	17.1	16.6	15.3	15.0	15.3	17.2
PA	9.5	11.0	9.3	11.6	10.5	10.4	9.4	9.6	9.6	11.7	10.8
SC	22.7	25.7	24.3	23.6	23.7	22.0	23.0	22.3	20.8	19.1	22.4
TN	16.8	15.9	16.4	18.3	14.2	15.1	14.6	13.5	13.3	13.4	12.6
VA	14.9	14.0	14.3	15.5	12.0	14.1	11.1	12.0	13.4	12.8	13.8
WI	12.8	10.3	19.8	17.6	17.1	14.4	20.2	20.6	20.8	17.6	20.1
WV	10.3	8.6	10.0	9.6	6.6	9.4	5.5	10.2	9.1	11.1	12.5
Subunit	16.3	17.1	18.1	18.9	17.3	16.5	17.0	16.5	17.1	17.0	18.0
Nonhunt											
MI	13.6	15.7	15.6	17.7	15.2	15.0	16.3	13.4	16.8	17.9	17.5
N. England[b]	7.7	8.5	9.9	10.5	8.6	11.6	9.2	9.1	7.7	8.9	9.6
NJ	7.1	11.7	9.6	12.5	6.6	10.8	9.0	9.2	8.3	9.7	9.4
NY	11.7	10.2	13.6	15.5	13.0	12.7	13.2	12.6	13.8	14.9	16.0
Subunit	10.9	11.7	13.1	14.7	12.1	13.3	12.9	11.7	12.3	13.6	14.1
Unit	15.4	16.1	17.2	18.2	16.3	15.9	16.3	15.6	16.2	16.3	17.3
CENTRAL UNIT											
AR	18.8	19.5	17.6	17.2	17.1	13.0	18.0	15.0	15.2	16.2	16.6
CO	19.7	20.7	22.5	22.5	14.4	17.6	16.4	21.2	15.5	21.7	16.4
IA	28.3	31.2	27.1	24.2	23.7	24.6	32.6	31.1	29.3	35.7	34.2
KS	59.5	55.4	68.4	51.5	31.8	45.2	53.3	44.6	56.3	58.8	49.3
MN	19.8	18.5	16.6	17.2	13.8	19.2	10.0	11.0	13.0	11.8	17.5
MO	22.8	20.6	18.9	19.6	16.6	18.5	20.1	17.4	17.3	21.1	17.2
MT	12.1	14.4	13.3	15.1	10.8	13.0	12.7	12.9	11.6	12.1	11.8
NE	31.5	40.0	36.4	36.5	30.9	29.1	39.5	32.4	33.9	31.6	30.2
NM	15.7	13.3	15.7	17.8	18.7	12.6	18.3	15.2	16.3	16.3	19.2
ND	35.9	32.8	44.3	43.5	34.8	29.2	43.7	28.0	47.6	37.1	30.0
OK	22.7	32.8	29.6	25.2	26.1	24.9	32.5	34.5	32.5	25.8	28.9
SD	33.4	35.6	37.6	40.3	35.9	38.0	36.9	36.1	32.7	39.3	36.7
TX	21.3	21.7	21.2	18.6	19.1	18.7	19.3	15.8	19.2	15.1	13.9
WY	8.6	9.4	7.2	10.3	6.3	8.5	6.7	7.2	5.6	6.2	6.2
Unit	23.2	24.2	24.0	24.0	20.1	21.1	22.4	20.7	21.4	21.2	20.4
WESTERN UNIT											
AZ	19.6	22.6	24.5	25.3	18.9	18.8	16.7	19.8	22.9	23.7	16.1
CA	10.6	11.1	11.4	10.6	9.9	12.6	11.6	12.3	8.7	8.2	8.5
ID	10.7	6.1	8.6	8.1	6.7	10.6	7.6	9.6	7.3	9.7	10.9
NV	4.4	3.8	4.7	3.7	3.3	3.6	3.5	3.5	2.7	6.5	2.3
OR	5.8	4.4	4.5	7.5	5.1	6.6	6.8	6.0	5.4	5.7	8.9
UT	9.1	5.2	8.2	12.7	5.6	7.9	6.4	7.5	4.9	8.4	5.1
WA	7.6	5.3	7.1	8.1	7.7	7.9	8.4	6.9	8.0	7.5	7.6
Unit	10.3	8.5	10.2	11.0	8.5	10.5	9.5	10.1	8.4	10.6	8.7

[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 42-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 <u>heard and seen</u> along Breeding Bird Survey routes, 1966-2006.

	10 year (1997-06)					41 year (1966-06)				
	N	% Change[b]		90% CI		N	% Change[b]		90%CI	
EASTERN UNIT										
Hunt										
AL	90	-2.1	**	-3.2	-1.0	101	-1.5	**	-2.1	-0.8
DE/MD	66	-0.7		-1.6	0.1	78	0.2		-0.3	0.7
FL	73	-1.5		-3.4	0.4	87	1.7	**	0.9	2.5
GA	62	-1.2		-2.7	0.2	75	-1.5	**	-2.4	-0.5
IL	100	6.1	**	4.5	7.8	101	1.3	**	0.6	2.0
IN	56	3.2	**	1.9	4.6	61	0.3		-0.2	0.8
KY	35	1.8	*	0.3	3.3	51	0.4		-0.3	1.1
LA	51	2.5	*	0.6	4.5	71	2.3	**	1.1	3.6
MS	24	-3.5	**	-5.1	-1.8	34	-1.8	**	-2.7	-1.0
NC	72	1.2		-0.5	2.9	85	0.1		-0.7	0.9
OH	60	1.9	**	0.9	3.0	78	0.7	*	0.2	1.3
PA	99	-0.1		-1.0	0.9	121	1.7	**	1.1	2.3
SC	32	2.6	*	0.9	4.3	39	-0.1		-0.9	0.7
TN	42	1.2		-0.8	3.2	47	-0.6		-1.4	0.2
VA	49	0.4		-1.1	1.8	55	-0.7	*	-1.2	-0.1
WV	93	3.0	**	2.2	3.8	95	1.5	**	0.8	2.1
WI	48	2.7	*	1.0	4.4	56	5.0	**	4.2	5.9
Subunit	1052	1.4	**	0.9	1.9	1235	0.2		-0.1	0.5
Nonhunt										
MI	57	2.4	**	1.1	3.6	82	0.7		0.1	1.3
N.England[c]	126	-1.0		-2.0	0.0	155	2.7	**	2.0	3.4
NJ	26	-0.5		-2.8	1.9	37	0.3		-0.8	1.5
NY	93	-0.2		-1.2	0.7	117	2.5	**	2.1	2.9
Subunit	302	0.4		-0.2	1.0	391	1.7	**	1.3	2.1
Unit	1354	1.2	**	0.8	1.6	1626	0.4	**	0.2	0.7
CENTRAL UNIT										
AR	31	1.7		0.0	3.4	35	1.0		-0.3	2.4
CO	121	1.6		-0.2	3.5	133	1.1		0.1	2.1
IA	33	4.0	**	1.9	6.2	39	-0.3		-1.3	0.6
KS	61	3.0	*	0.7	5.3	62	0.2		-0.6	0.9
MN	60	1.2		-1.2	3.7	70	-1.0		-1.9	0.0
MO	54	1.1		-0.2	2.4	65	-1.6	**	-2.4	-0.9
MT	44	-1.0		-4.0	1.9	53	-0.9		-1.8	-0.1
NE	45	1.9		-1.1	4.9	49	-0.5		-1.2	0.1
NM	62	1.0		-2.0	3.9	74	0.0		-1.3	1.3
ND	41	0.4		-2.4	3.1	46	0.6		-0.1	1.3
OK	53	1.8	*	0.4	3.1	60	-1.2	**	-1.8	-0.6
SD	42	-1.2		-3.6	1.2	51	0.4		-0.4	1.2
TX	179	-1.6	*	-2.7	-0.4	206	-1.3	**	-1.8	-0.8
WY	76	3.1	*	0.8	5.3	107	0.7		-1.2	2.6
Unit	902	0.7		0.0	1.3	1050	-0.4	**	-0.7	-0.2
WESTERN UNIT										
AZ	52	1.7		-1.5	4.9	76	-0.1		-2.5	2.3
CA	164	-0.5		-1.8	0.8	223	-1.1	*	-1.9	-0.3
ID	39	3.1	**	1.3	4.8	43	-0.5		-1.5	0.5
NV	24	-0.1		-4.1	4.0	36	2.0	*	0.4	3.6
OR	71	-1.0		-4.3	2.3	98	-2.3	**	-3.4	-1.3
UT	86	0.6		-2.1	3.4	93	-1.7	**	-2.5	-0.8
WA	58	2.9		0.5	5.4	66	0.8		-0.2	1.9
Unit	494	0.9		-0.3	2.1	635	-0.9	*	-1.5	-0.3

[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., 41 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, and total bag from Harvest Information Program surveys for the 2005-06 season.

Management Unit	Hunters		Days hunted		Birds bagged	
EASTERN						
AL	63,200	±7%[1]	168,800	± 13%	1,252,600	± 16%
DE	3,000	± 21%	8,700	± 34%	54,200	± 39%
FL	19,200	± 17%	63,000	± 19%	341,800	± 24%
GA	39,200	± 14%	116,500	± 18%	757,200	± 20%
IL	37,600	± 8%	121,300	± 11%	798,800	± 14%
IN	18,400	± 13%	66,600	± 18%	371,900	± 25%
KY	29,700	± 17%	89,400	± 36%	703,100	± 41%
LA	23,800	± 23%	88,400	± 35%	445,900	± 26%
MD	10,800	± 20%	41,900	± 28%	241,700	± 35%
MS	24,100	± 21%	66,400	± 32%	455,900	± 32%
NC	46,000	± 15%	130,400	± 20%	741,800	± 20%
OH	19,100	± 21%	85,700	± 26%	488,800	± 39%
PA	40,900	± 14%	160,000	± 18%	430,300	± 19%
RI	300	± 55%	1,100	± 66%	900	± 88%
SC	65,100	± 6%	222,400	± 10%	1,447,700	± 12%
TN	36,900	± 23%	93,900	± 31%	633,200	± 36%
VA	26,500	± 9%	76,900	± 15%	424,400	± 21%
WV	1,800	± 30%	5,600	± 54%	22,300	± 48%
WI	15,600	± 26%	62,700	± 31%	180,600	± 48%
Unit	521,200		1,669,800	± 5%	9,793,000	± 6%
CENTRAL						
AR	43,400	± 15%	147,300	± 24%	861,600	± 20%
CO	18,400	± 7%	48,700	± 9%	263,400	± 10%
KS	32,400	± 8%	109,500	± 12%	680,400	± 11%
MN	6,000	± 34%	14,700	± 43%	48,800	± 61%
MO	40,200	± 10%	113,400	± 16%	641,800	± 20%
MT	2,000	± 34%	4,800	± 38%	17,800	± 44%
NE	17,800	± 10%	64,300	± 14%	371,100	± 15%
NM	9,300	± 17%	42,000	± 20%	250,100	± 22%
ND	3,100	± 27%	11,800	± 38%	55,500	± 48%
OK	34,500	± 9%	111,500	± 16%	828,500	± 20%
SD	7,100	± 18%	25,200	± 26%	127,700	± 28%
TX	257,200	± 10%	1,030,000	± 13%	5,710,700	± 15%
WY	2,500	± 27%	6,600	± 27%	34,100	± 31%
Unit	473,900		1,729,800	± 8%	9,891,400	± 9%
WESTERN						
AZ	41,900	± 8%	137,100	± 11%	952,600	± 11%
CA	64,700	± 7%	183,100	± 9%	1,013,400	± 10%
ID	9,200	± 19%	32,500	± 25%	122,900	± 28%
NV	4,100	± 17%	10,000	± 19%	47,700	± 25%
OR	8,600	± 27%	24,100	± 40%	85,600	± 51%
UT	13,400	± 16%	35,000	± 24%	137,800	± 29%
WA	7,900	± 23%	24,400	± 32%	105,500	± 29%
Unit	149,800		446,200	± 6%	2,465,500	± 7%
U.S.	1,144,900[2]		3,845,700	± 4%	22,149,900	± 5%

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

[2]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, and total bag from Harvest Information Program surveys for the 2006-07 season.

Management Unit	Hunters		Days hunted		Birds bagged	
EASTERN						
AL	56,300	±17 % [1]	141,800	±17 %	1,015,300	±20 %
DE	2,400	±19 %	7,000	±24 %	39,400	±20 %
FL	15,900	±19 %	53,600	±21 %	298,800	±24 %
GA	38,600	±14 %	120,200	±20 %	851,500	±22 %
IL	40,500	±10 %	129,200	±15 %	948,700	±13 %
IN	13,200	±18 %	40,200	±22 %	190,500	±23 %
KY	20,700	±19 %	64,000	±28 %	491,300	±24 %
LA	22,700	±19 %	65,800	±24 %	373,700	±23 %
MD	9,300	±19 %	29,500	±25 %	162,700	±28 %
MS	23,000	±15 %	60,100	±18 %	492,800	±21 %
NC	40,400	±14 %	125,500	±16 %	861,500	±19 %
OH	14,300	±19 %	70,000	±26 %	284,400	±20 %
PA	31,600	±18 %	113,700	±21 %	372,200	±23 %
RI	100	±108 %	600	±155 %	500	±123 %
SC	36,200	±13 %	118,500	±15 %	696,200	±13 %
TN	37,800	±17 %	101,000	±24 %	656,100	±26 %
VA	20,400	±12 %	52,500	±12 %	304,200	±14 %
WV	1,100	±21 %	2,700	±24 %	14,600	±24 %
WI	11,200	±26 %	40,100	±29 %	100,900	±38 %
Unit	435,700		1,336,000	±5 %	8,155,400	±6 %
CENTRAL						
AR	31,300	±16 %	77,500	±18 %	621,500	±20 %
CO	19,800	±11 %	45,700	±13 %	270,300	±19 %
KS	35,400	±8 %	116,400	±11 %	711,800	±12 %
MN	8,000	±33 %	24,200	±39 %	50,000	±46 %
MO	44,700	±7 %	129,800	±12 %	709,500	±15 %
MT	1,800	±36 %	3,900	±38 %	14,800	±33 %
NE	15,000	±12 %	43,000	±12 %	249,700	±12 %
NM	7,100	±20 %	33,900	±28 %	226,900	±33 %
ND	4,000	±23 %	10,800	±24 %	56,400	±25 %
OK	36,100	±9 %	108,300	±17 %	704,400	±24 %
SD	6,400	±16 %	19,600	±17 %	103,300	±18 %
TX	258,900	±10 %	986,200	±14 %	5,138,700	±14 %
WY	2,300	±29 %	6,500	±36 %	29,500	±37 %
Unit	470,800		1,605,900	±9 %	8,887,000	±9 %
WESTERN						
AZ	37,300	±9 %	130,100	±21 %	750,700	±14 %
CA	63,300	±8 %	215,900	±18 %	1,020,400	±12 %
ID	10,100	±16 %	26,900	±22 %	98,100	±22 %
NV	4,100	±21 %	9,400	±25 %	38,900	±27 %
OR	7,700	±24 %	21,600	±32 %	84,300	±37 %
UT	11,900	±11 %	28,900	±16 %	77,600	±20 %
WA	10,500	±12 %	26,000	±12 %	132,900	±14 %
Unit	144,900		458,800	±10 %	2,202,900	±8 %
U.S.	1,051,400[2]		3,400,700	±5 %	19,245,300	±5 %

[1]This represents the 95% confidence interval expressed as percent of the point estimate.
[2]This total is slightly exaggerated because people are counted more than once if they hunted in more than one state.