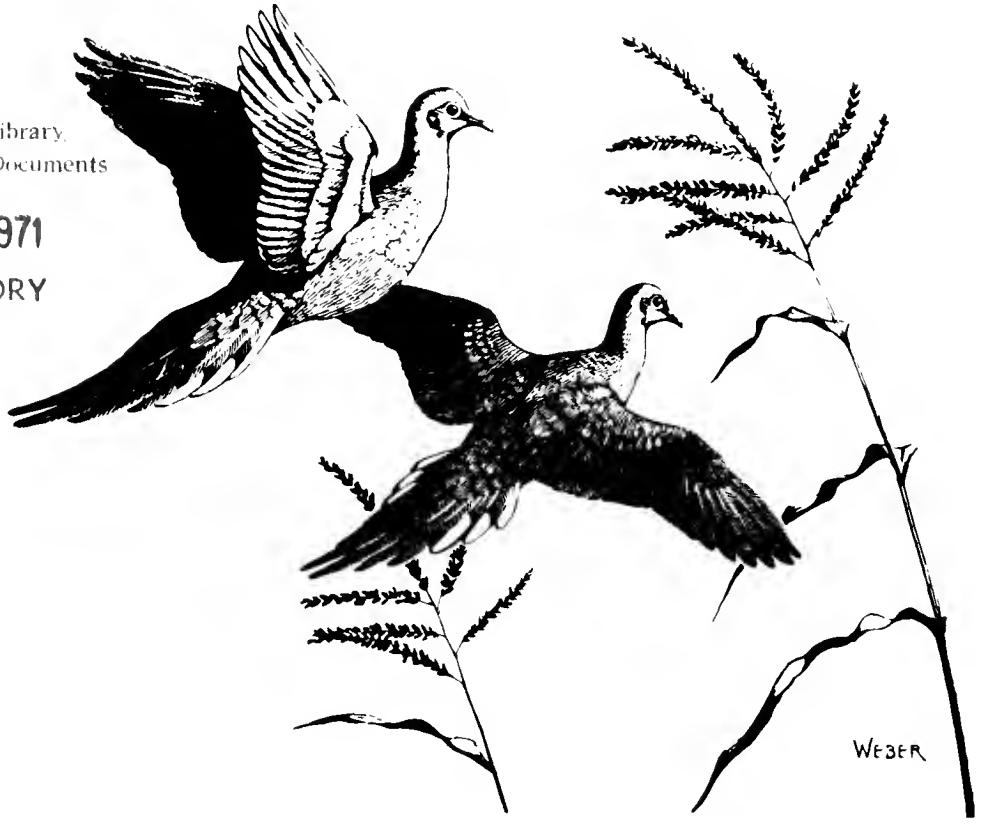
MOURNING DOVE STATUS REPORT

1970



UNITED STATES DEPARTMENT OF THE INTERIOR
FISH AND WILDLIFE SERVICE
BUREAU OF SPORT FISHERIES AND WILDLIFE
Special Scientific Report — Wildlife No. 141

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MOURNING DOVE STATUS REPORT, 1970

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ABSTRACT

Mourning dove population indexes increased by 4 percent from 1969 to 1970 in the Eastern Management Unit, but declined 2 percent in the Central Management Unit and 11 percent in the Western Management Unit. The changes were not statistically significant. The 1970 indexes were below the 10-year means, 1960-69, by 3 percent in the Eastern Unit, 15 percent in the Central, and 27 percent in the Western. Regression analyses of the call-count data for 1960-70 indicate a statistically significant downward trend in dove breeding populations in all management units; mean rates of decline were 1 percent a year in the Eastern Unit, 3 percent a year in the Central, and 4 percent a year in the Western.

Changes in the population indexes are described by State and physiographic region. The 1970 indexes were generally lower than in 1969 in the northern and western areas of the country, and generally higher in sections of the Rocky Mountains, the middle States, and the eastern seaboard. Regression analyses of 11 years' data, 1960 to 1970, indicate a statistically significant downward trend in population in much of the area represented by the northern Great Plains and Pacific border and southern border States. Trends are significantly upward in several scattered mid-latitude States.

INTRODUCTION

Management of mourning doves in the United States is essentially the regulation of hunting to achieve proper harvest. The Call-Count Survey, conducted annually since 1953 by Federal, State, and independent observers on more than 800 prescribed routes, provides population data on which wildlife administrators rely in setting annual regulations. This report describes the methods employed to obtain and analyze those data and presents the status of the 1970 mourning dove breeding population.

Two versions of the dove status report, one preliminary and one final, are prepared annually. In 1970 the preliminary version was mailed to members of the Dove Regulations Committee a week before the regulations meeting in June at Washington, D.C. This timely distribution was made possible by the promptness of cooperators who sent their data directly to the Migratory Bird Populations Station immediately after completion of their surveys. The present report is the final version and contains additional survey data received too late for use in the preliminary version. As is customary, it will be distributed to all cooperators and will be available to interested organizations and individuals.

Basic data gathering and analyzing procedures used in this report were the same as those used in 1969 (Ruos, 1970).

The Call-Count Survey

Field studies have demonstrated the feasibility of the Call-Count Survey as a method for detecting annual changes in mourning dove breeding populations (Foote and Peters, 1952). Since 1953, these surveys have been conducted throughout the United States over a system of more than 800 established routes. Each call-count route has twenty, 3-minute listening stations spaced at 1-mile intervals, usually on lightly traveled secondary roads.

Each route is checked once between May 20 and June 10. Intensive studies in the eastern United States (Foote and Peters, 1952) indicated that dove calling is relatively stable during this period. Call-count surveys are not made when wind velocities exceed 12 miles per hour or when it is raining.

Records are kept of all doves seen or heard calling along the routes. The numbers heard calling during the 3-minute listening periods are totaled for each route to provide the data for determining the population index. The numbers of calls per dove and of doves seen are not currently used in the index calculation, but they are recorded. A detailed analysis of these and other pertinent data from past call counts is currently under study by the Migratory Bird Populations Station.

Studies by Frankel and Baskett (1961) and Jackson and Baskett (1964) have shown that unmated males call at a greater rate than mated males. This suggests that the reliability of the annual call-count census is reduced by the variability in the ratio of mated to unmated males. However, Wight (1964) observed that variations in the ratio of mated to unmated males, where the adult sex ratio approached equality, did not significantly alter the reliability of the dove call count for measuring annual trends of breeding mourning doves. Irby (1964) also found no evidence on his study area in Arizona that the numbers of unmated males materially affected call-count results.

Quality checks of field data

Survey reports were examined to determine circumstances affecting the accuracy with which the routes were run and the data recorded. Records for routes run under unacceptable conditions were not analyzed. Reports on routes completed under the prescribed conditions but containing discrepancies or errors, or lacking data, were examined to ascertain whether parts were acceptable. If so, they were used in

analyses for which they were applicable. Where there was a change in observers on a route from one year to the next, the data were examined to determine whether an unexpected population change was apparent. When such differences exceeded those of the prescribed limits, they were attributed to differences in observers, and the data were not used in the current analyses.

Randomization of call-count routes

The original call-count routes (established between 1951 and 1956, and hereafter designated "management routes") were, in many instances, selected in areas of high-density dove populations and were not representative of populations over entire States or management units.

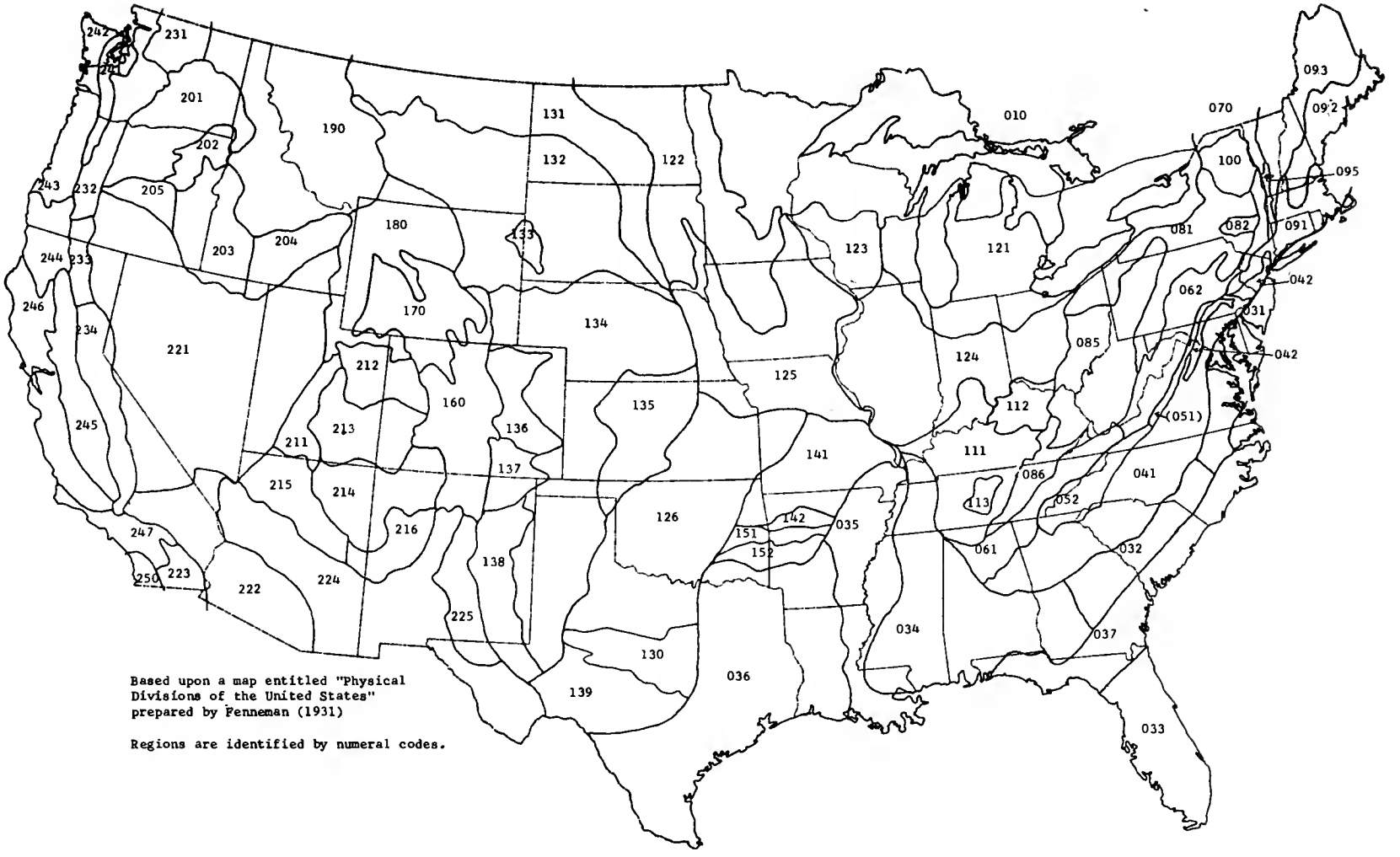
Randomly located routes were first employed in seven southeastern States in 1957 (Foote, Peters, and Finkner, 1958). A study of the random and management route data from these States confirmed earlier assumptions that a revision of the nationwide call-count survey routes should be undertaken if representative dove population indexes were to be obtained. This recommendation prompted the gradual selection and establishment of 912 randomly located call-count routes. In 1970, for the first time, random routes were established in all 48 conterminous States.

Both types of routes were run during the year of transition from management to random routes. This procedure permitted a direct comparison of data (Foote, Peters, and Finkner, 1958).

Physiographic stratification of call-count routes

Biologists recognize the limitation of sampling wildlife populations by political units. Census data collected and analyzed by ecological divisions represent better statistical design and could be expected to provide more precise information with the same effort.

An ecological sampling design for the collection of dove population data, using physiographic regions as the basis for stratification, was suggested by Foote, Peters, and Finkner (1958). The 79 regions designated in this report (fig. 1) are based essentially on a map entitled "Physical Divisions of the United States" prepared by Fenneman (1931). The boundaries of these divisions were modified in several instances after examination of field data and more recent ecological studies.



Based upon a map entitled "Physical Divisions of the United States" prepared by Fenneman (1931)

Regions are identified by numeral codes.

Figure 1.--Physiographic regions used in analysis of mourning dove population data, Revised 1970
See page 5 for strata codes.

Physiographic Regions Used in Analysis of Mourning Dove Population Data, Revised 1970
[Modified after Fenneman (1931)]

Description	Stratum Code
Laurentian Upland Division	
Superior Upland Province	010
Atlantic Plain Division	
Coastal Plain Province	
Embayed section	031
Upper Coastal Plain	032
Floridian section	033
East Gulf Coastal Plain	034
Mississippi Alluvial Plain	035
West Gulf Coastal Plain	036
Lower Coastal Plain	037
Appalachian Highlands Division	
Piedmont Province	
Piedmont Uplands	041
Piedmont Lowlands	042
Blue Ridge Province	
Northern section	051
Southern section	052
Valley and Ridge Province	
Tennessee section	061
Middle and Hudson Valley section	062
St. Lawrence Valley Province	
Champlain and Northern section	070
Appalachian Plateaus Province	
Mohawk and Allegheny section	081
Catskill section	082
Kanawha section	085
Cumberland section	086
New England Province	
Southern New England section	091
Northern New England section	092
Mountain section	093
Taconic section	095
Adirondack Province	100

Description	Stratum Code
Interior Plains Division	
Interior Low Plateaus Province	
Highland Rim section	111
Lexington Plain	112
Nashville Basin	113
Central Lowland Province	
Eastern lake section	121
Western lake section	122
Wisconsin Driftless section	123
Till Plains	124
Dissected Till Plains	125
Osage Plains	126
Great Plains Province	
Central Texas section	130
Missouri Plateau, glaciated	131
Missouri Plateau, unglaciated	132
Black Hills	133
High Plains	134
Plains Border	135
Colorado Piedmont	136
Raton section	137
Pecos Valley	138
Edwards Plateau	139
Interior Highlands Division	
Ozark Plateaus Province	
Springfield-Salem plateaus	141
Boston "Mountains"	142
Ouachita Province	
Arkansas Valley	151
Ouachita Mountains	152
Rocky Mountain Division	
Southern Rocky Mountains Province	160
Wyoming Basin Province	170
Middle Rocky Mountains Province	180
Northern Rocky Mountains Province	190

Description	Stratum Code
Intermontane Plateaus Division	
Columbia Plateaus Province	
Walla Walla Plateau	201
Blue Mountain section	202
Payette section	203
Snake River Plain	204
Harney section	205
Colorado Plateaus Province	
High Plateaus of Utah	211
Uinta Basin	212
Canyon Lands	213
Navajo section	214
Grand Canyon section	215
Datil section	216
Basin and Range Province	
Great Basin	221
Sonoran Desert	222
Salton Trough	223
Mexican Highland	224
Sacramento section	225
Pacific Mountain Division	
Cascade Sierra Mountains Province	
Northern Cascade Mountains	231
Middle Cascade Mountains	232
Southern Cascade Mountains	233
Sierra Nevada	234
Pacific Border Province	
Puget Trough	241
Olympic Mountains	242
Oregon Coast Range	243
Klamath Mountains	244
California Trough	245
California Coast Ranges	246
Los Angeles Ranges	247
Lower Californian Province	250

Breeding Density Index

The Breeding Density Index (BDI) is an indicator of the number of doves per unit of area and is derived from the average number of calling doves per route. To obtain as accurate an average as possible for derivation of this index, the call-count data from each stratum in each State are weighted according to the land areas they represent.

Before 1966, the BDI for each State represented the average number of birds heard calling per route within that State, thus weighting all routes equally. The State averages were then weighted in proportion to the estimated area of dove habitat in each State of a management unit (fig. 2) to provide a Breeding Population Index for each unit (U.S. Bureau of Sport Fisheries and Wildlife, 1957).

Beginning with the 1966 survey, weighting factors based on physiographic regions were used for calculating BDI values in States which had been "randomized" for 2 or more years. The average number of doves heard calling per route in each region within a State was weighted by the percentage of the total land area in the State occupied by that region.

Calculation of management unit BDI's since 1965 has involved two similar procedures as a result of a computer program change. In 1966 and 1967, indexes were determined for each management unit by weighting each State's BDI by the percentage of the total land area occupied by that State in the management unit. When a region within a State was not represented by a BDI, that region assumed the mean of the other regions weighted by land area in that State. In 1968 and 1969, management unit BDI's were derived directly from State physiographic region BDI's. When a region within a State was not represented by a BDI, that region assumed the weighted management unit mean. Minor differences between these procedures are evident only when physiographic regions within States are not represented by comparable routes.

Random routes in Maine, New Hampshire, Rhode Island, and Vermont were established after initiation of a special study in 1966 to determine the effects of hunting regulations on dove populations in the Eastern Management Unit. In order to preserve the experimental design of the special study, call-count data from these States have not been included in the Eastern Management Unit means. In addition, no data were received from Delaware in 1969. Consequently, the 1969 and 1970 management unit means were derived from comparable routes run in 43 States.

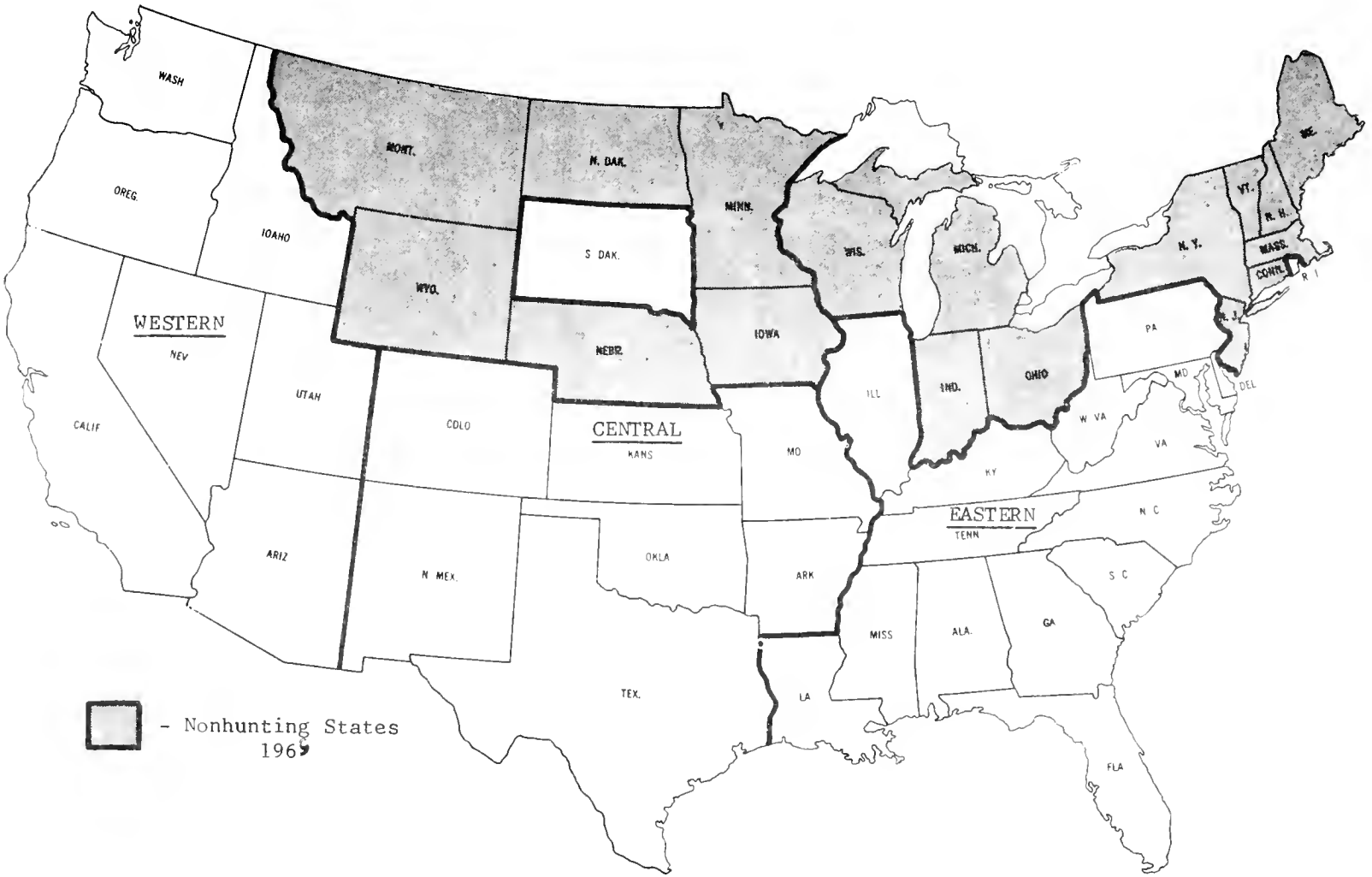


Figure 2.--Mourning dove management units

Determination of short-term population changes, 1969 to 1970

Changes in the size of mourning dove breeding populations between 1969 and 1970 are indicated by data from 679 comparable routes run in both years. Weighted average BDI values for each year are presented by States and management units. Differences in these BDI values, expressed as percent change, determined the magnitude of changes in the breeding population.

Determination of long-term population trends by State, 1960 to 1970

Short-term (year-to-year) population changes are based, as indicated, on data from comparable routes only. Since the composition of these comparable routes changes with each 2-year comparison, a Base-Year (BY) has been chosen for each State. Long-term trends are shown by applying the percent change in the BDI from year to year to this index. Before 1967, the BY was generally the first year that the State's call-count routes were randomized. In order to provide a more uniform basis for evaluation of long-term trends, 1967 has been selected as the BY for all States. The index for this Base Year was obtained by taking the mean of comparable routes run in both 1966 and 1967 (Ruos and MacDonald, 1968). This BY value is thought to provide a meaningful refinement over the previous method. Not only are two "random-route" years averaged to reduce the influence of a possible atypical year, but the choice of a uniform BY for all States reduces possible bias in overweighting a State by the selection of a BY in a peak year.

As in the past, the BDI value for each State for each year is adjusted to the BY value and weighted to provide management unit values. This weighting is based upon differences in land area among States. The land area values and the adjusted BDI values for States and management units are presented.

Determination of long-term trends by physiographic region, 1965 to 1970

Dove BDI's have been determined for each physiographic region since 1965. The 6-year trend has been obtained by adjusting these values to a base year similar to the procedures described in the preceding section, "Determination of long-term population trends by State, 1960 to 1970." 1969 has been selected as the Base-Year for all regions. In order to reduce the influence of low sampling intensity within regions, the 1969 BYI represents the average of the mean number of doves heard per route in 1968, 1969, and 1970.

The land area values and the BDI's adjusted to the 1969 BY are presented for each physiographic region within management units.

Computer analysis of dove call-count data

Through the efforts of the North Carolina Institute of Statistics, University of North Carolina, and with the support of the Southeastern Association of Game and Fish Commissioners, an improved computer program was made available for the analysis of the 1968, 1969, and 1970 call-count data. This program provides properly weighted State and management unit averages. It yields the mean difference, the standard error of the mean difference, and the level of significance of the change for each State and management unit. This program also provides a summary of data by physiographic region irrespective of State boundaries, thus allowing analysis of population distribution by physiographic region.

Statistical evaluation of data

The Call-Count Survey was designed to detect major year-to-year changes in the breeding population index within each management unit (Foote, 1959). Analysis of the 1969 and 1970 data revealed that observed differences of 8.5, 7.6, and 14.2 percent between these years within the Eastern, Central, and Western Management Units, respectively, would be statistically significant at the 95-percent level. For the entire country, an observed difference of 5.4 percent in the BDI between 1969 and 1970 would be significant. Although the survey was not designed to detect a change in the BDI between years within States or physiographic regions, data from these areas were also subjected to statistical analysis.

Long-term BDI's, adjusted to a BY for all physiographic regions, States, and management units, were examined to determine whether significant trends were present. Data from each source were analyzed using a linear regression model.

Determination of population distribution

The density distribution of doves has been determined from a study of BDI values adjusted to a BY for each physiographic region and State. These data for 1970 have been assigned to one of five density classes. Changes in the adjusted BDI's greater than 10 percent between 1969 and 1970 within physiographic region and State also were determined.

FINDINGS

From 1969 to 1970, the dove breeding population index increased by 4 percent in the Eastern Management Unit because of small increases in

the population indexes for the combined hunting States and the combined nonhunting States; but it decreased by 2 percent in the Central Unit because of a small increase for the combined hunting States and a large decrease for the combined nonhunting States; and by 11 percent in the Western Unit where all States are hunting States.

The Central and Western Management Unit population indexes are at their lowest levels for the 11-year period, 1960-70. All 1970 management unit values are below their preceding 10-year means. Further, a statistically significant downward population trend was found in each management unit. Additional study of these data is presented by management unit.

Status of the United States dove population

1970 population distribution.--The density distribution of mourning dove populations in the United States is presented by State (fig. 3) and by physiographic region (fig. 4). The most extensive area of high dove density was in the middle States, especially in the east-central Great Plains and Central Lowlands. Other important breeding population areas were observed in the Upper Coastal Plain of Georgia and the Carolinas and in the lower Mississippi River plain. A mean of 40 or more doves were heard per route in the States of Indiana, Kansas, and Nebraska.

1969 to 1970 population changes--The United States BDI declined 2.1 percent from 19.1 doves heard per route in 1969 to 18.7 doves heard per route in 1970 (table 1). Changes greater than 10 percent in the BDI are illustrated by State (fig. 5) and by physiographic region (fig. 6). The 1970 indexes were generally lower than in 1969 in the northern and western areas of the country, and generally higher in sections of the Rocky Mountains, mid-States, and eastern seaboard. From 1969 to 1970, no change occurred in the BDI of 19.7 doves heard per route for the combined hunting States; whereas a decline of 8.1 percent from 17.3 to 15.9 doves heard per route occurred in the combined nonhunting States index.

1960 to 1970 long-term population trends.--The 1970 BDI's adjusted to a Base-Year for the United States, the combined hunting States, and the combined nonhunting States are the lowest observed for the 11-year period, 1960-1970 (table 2). This is the fourth successive year without an increase in adjusted BDI's. The adjusted BDI's for these areas in 1970 are also well below the preceding 10-year means: United States, -14.2 percent; hunting States, -11.9 percent; and nonhunting States, -19.9 percent.

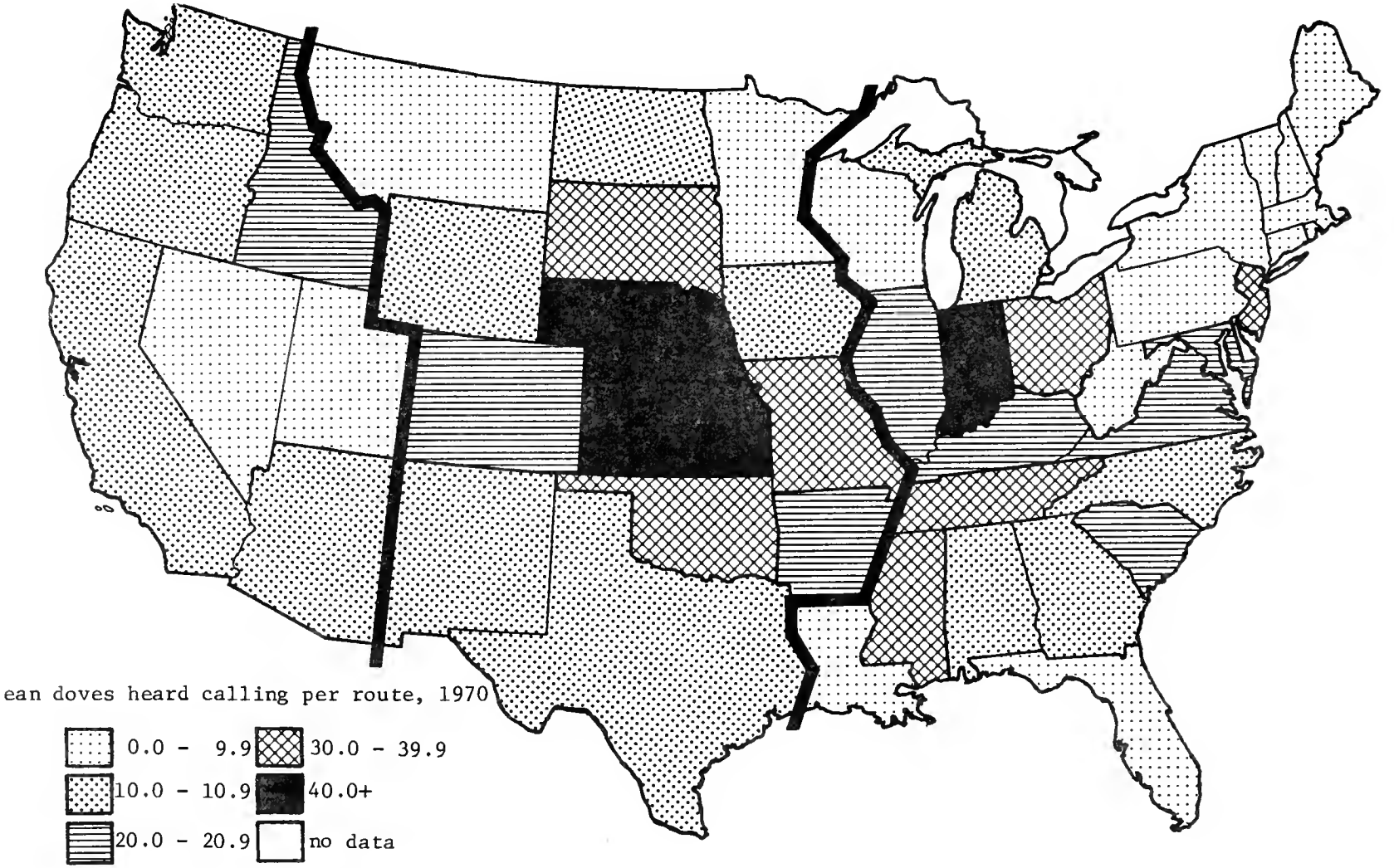


Figure 3.--Relative densities of breeding mourning doves by State, 1970

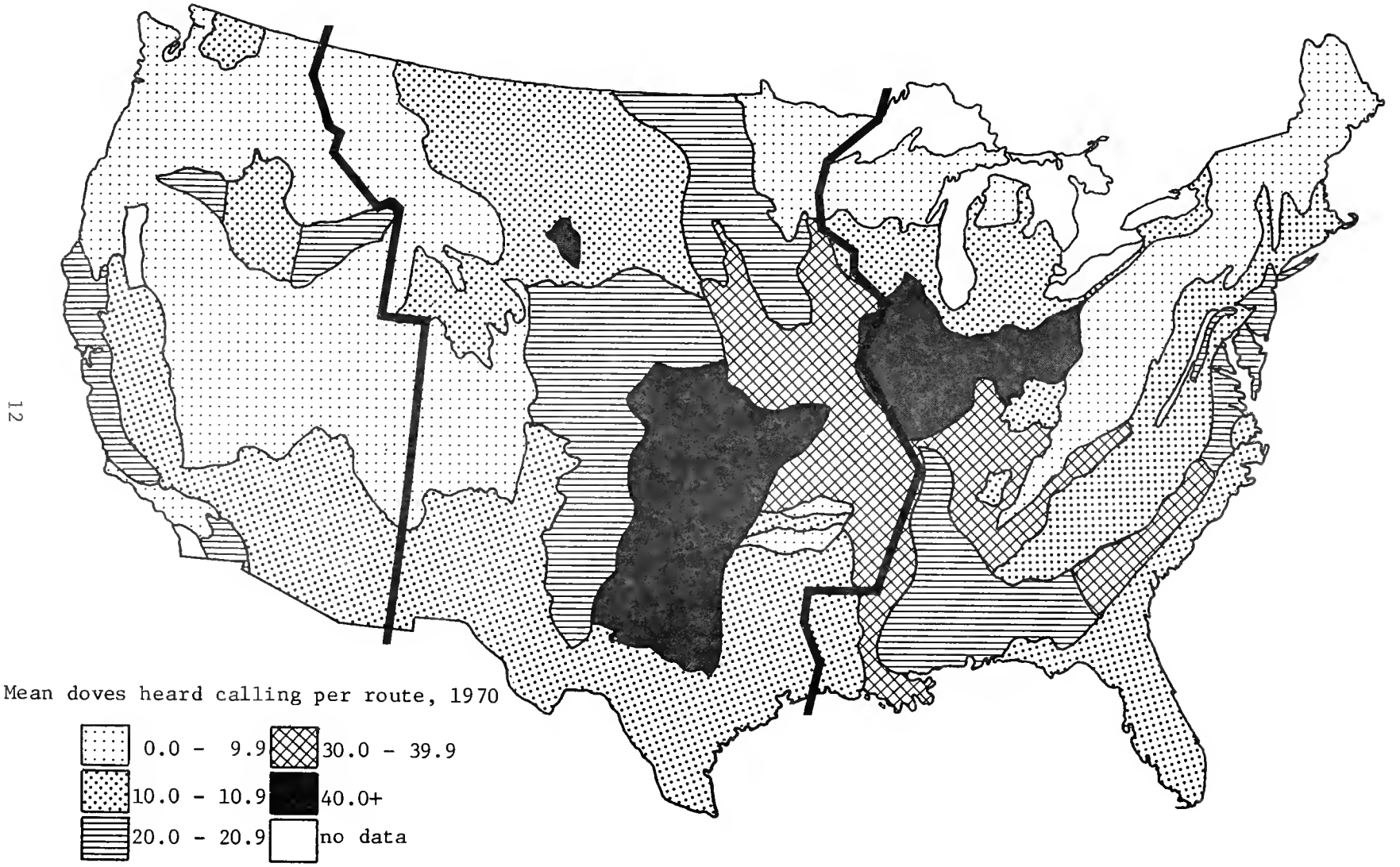


Figure 4.--Relative densities of breeding mourning doves by physiographic region, 1970

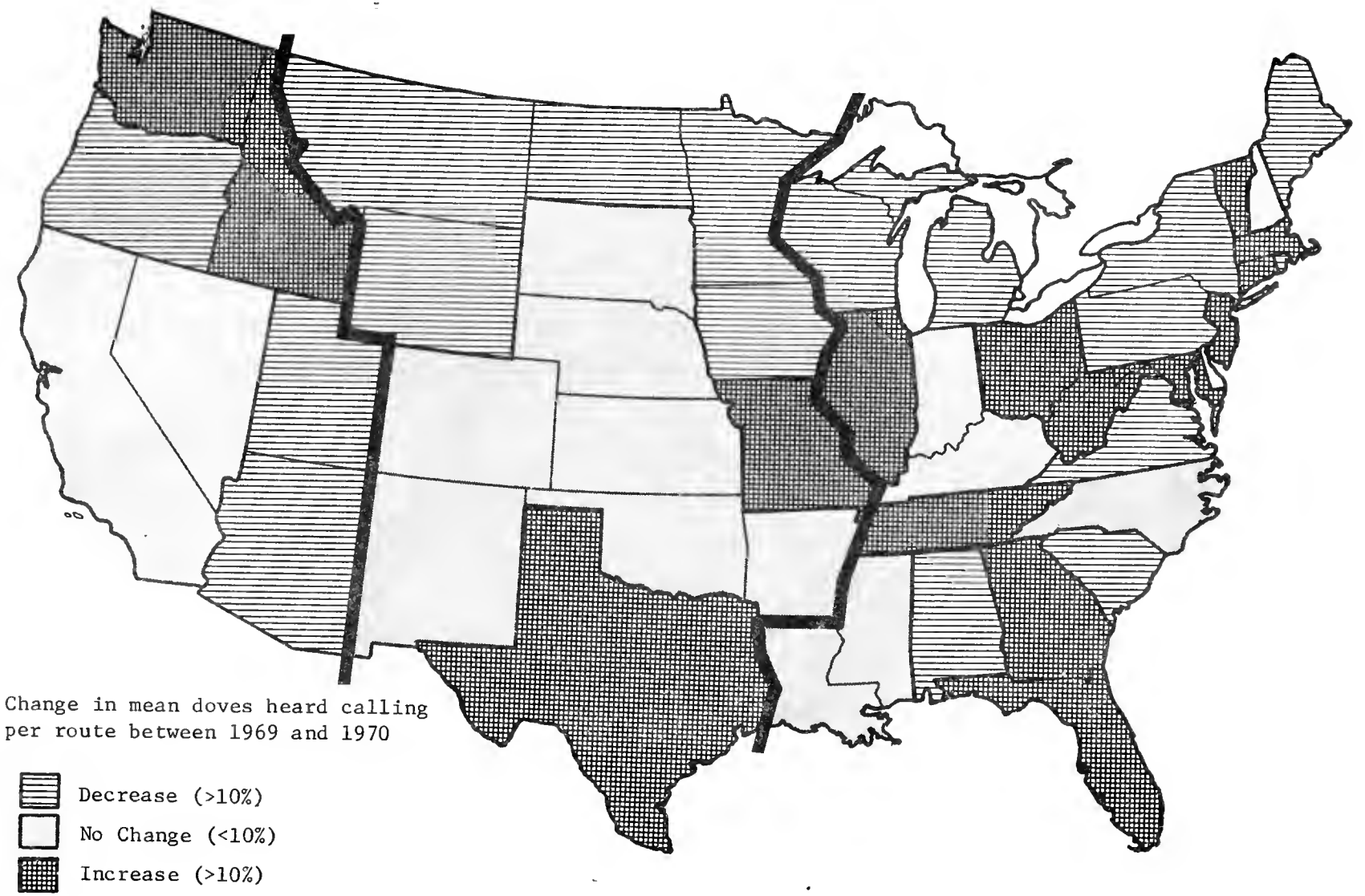


Figure 5.--Changes in densities of breeding mourning doves by State between 1969 and 1970

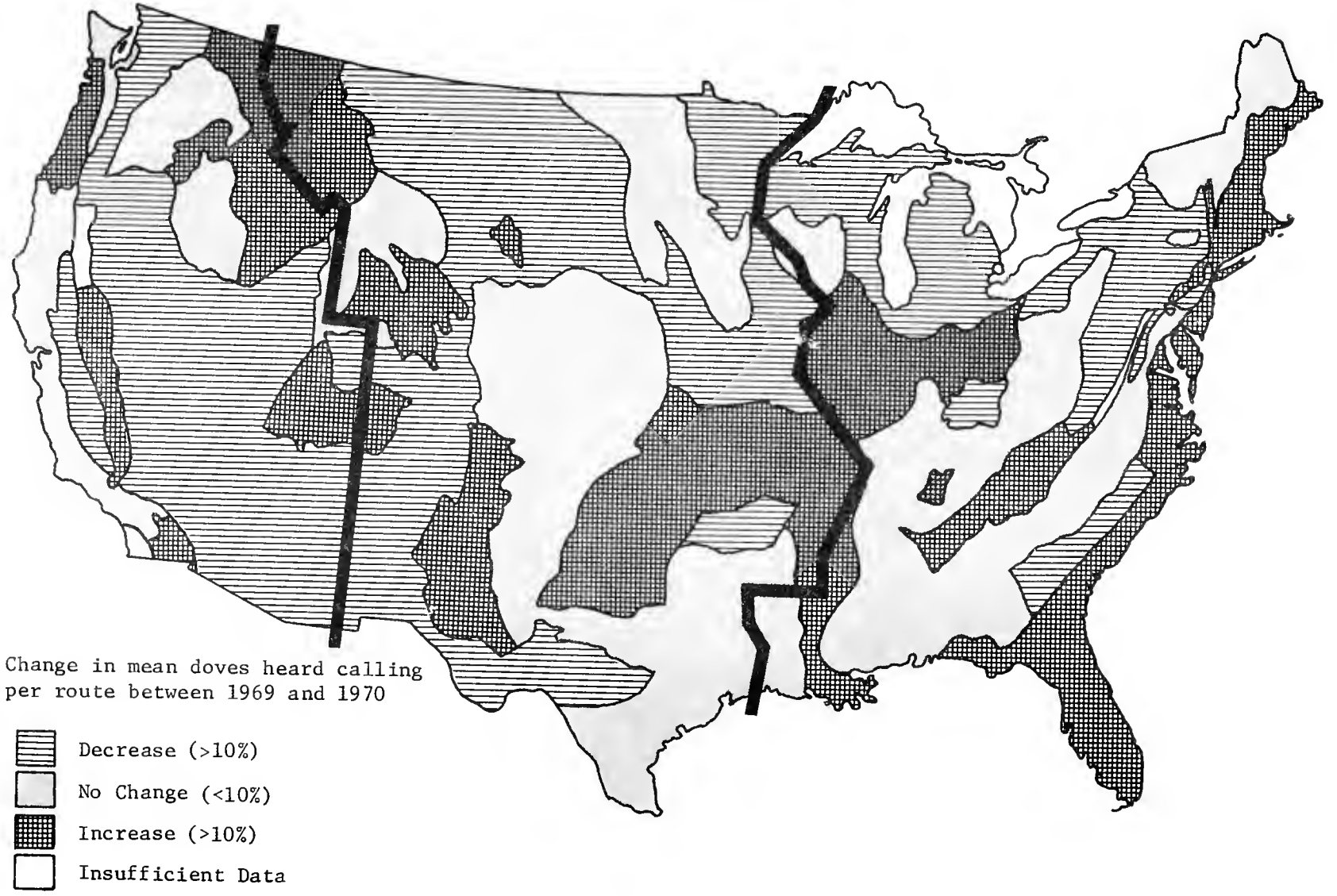


Figure 6.--Changes in densities of breeding mourning doves by physiographic region between 1969 and 1970

Adjusted BDI's plotted in figures 7 and 8 reflect the general downward trend in population indexes since 1960. Linear regression analyses of these data (table 2) are shown in figure 9. The adjusted BDI's declined at an average annual rate of 2.8 percent in the United States, 2.5 percent in the hunting States, and 3.3 percent in the nonhunting States. Thus, this study reveals a significant decline in U.S. populations between 1960 and 1970.

Population trends as determined from linear regression analyses are shown by State (table 2, fig. 10) and by physiographic region (table 3, fig. 11). From 1960 to 1970, statistically significant downward trends exist in much of the northern Great Plains and the Pacific border and southern border States. Trends are significantly upward in several scattered mid-latitude States.

Status of the Eastern Management Unit population

1970 population distribution.--Highest dove population densities in the Eastern Management Unit were in the west-central section, especially in the Central Lowlands. Densities were generally low in the Appalachian Highlands, northern uplands, and portions of the lower Atlantic Coastal Plain (fig. 4). States represented by a mean of 30 or more doves heard per route included Indiana, Ohio, Tennessee, Mississippi, and New Jersey (fig. 3).

1969 to 1970 population changes.--The Eastern Management Unit BDI increased 3.8 percent from 18.3 doves heard per route in 1969 to 19.0 doves heard per route in 1970 (table 1). The 1970 population levels were generally higher than in 1969 along the Atlantic seaboard and in sections of the Central Lowland and lower Mississippi plain. Population indexes were lower in the northern border States (figs. 5, 6). From 1969 to 1970, the combined hunting States index increased 4.1 percent and the combined nonhunting States index increased 1.9 percent.

1960 to 1970 long-term population trends.--The increase in the adjusted unit-wide BDI from 1969 to 1970 followed 3 successive years of annual population decrease (table 2). Population levels increased for the first time in 5 years in the combined hunting States, while the combined nonhunting States index increased for the second successive year. The adjusted unit BDI for 1970 is 3.1 percent below the preceding 10-year mean (fig. 7). The combined hunting States 1970 index is 7.2 percent below this mean. In contrast, the adjusted 1970 BDI for the combined nonhunting States is 8.0 percent above the preceding 10-year mean (fig. 12).

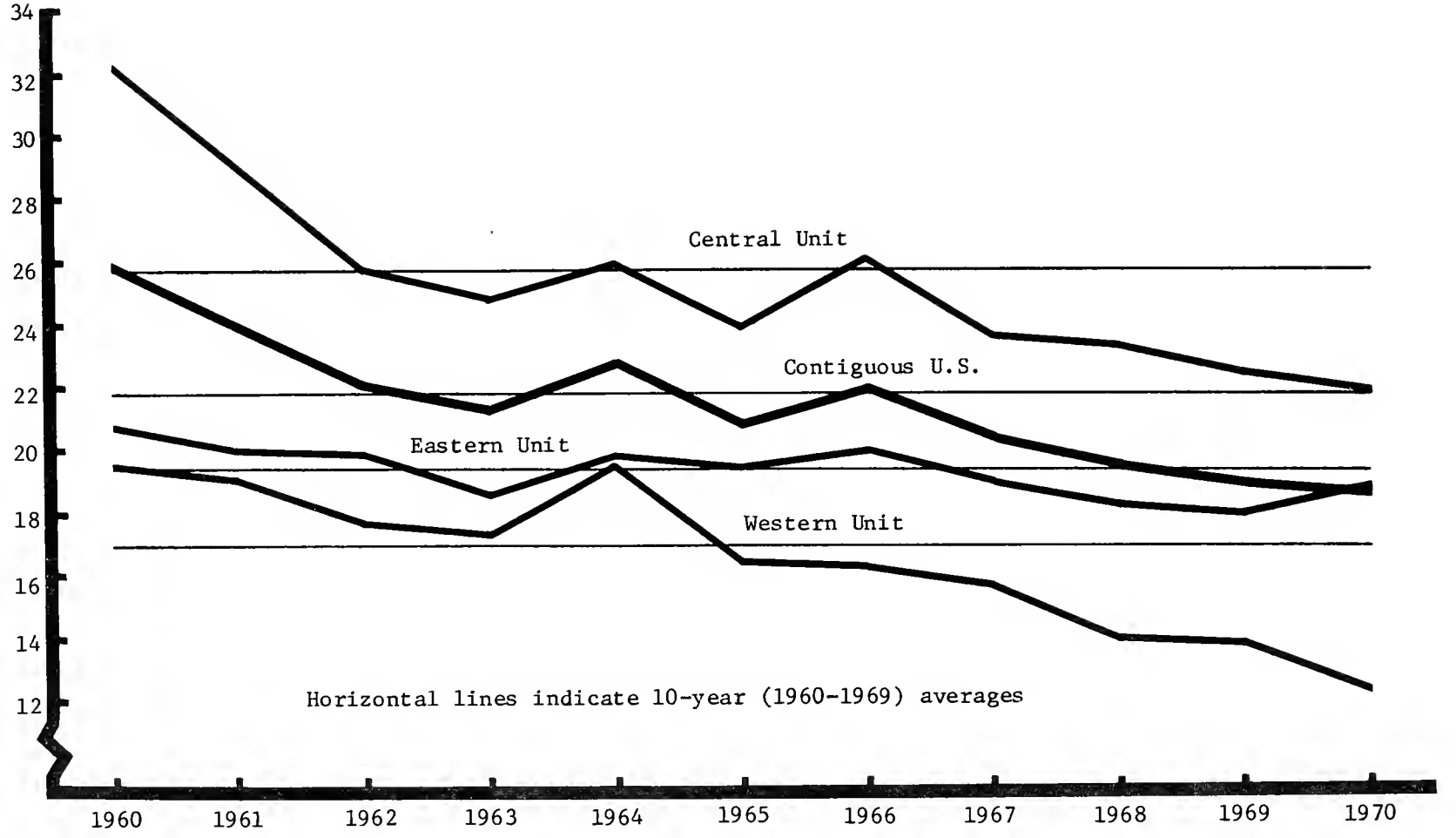


Figure 7.--Breeding mourning dove population indexes by management unit, 1960-1970

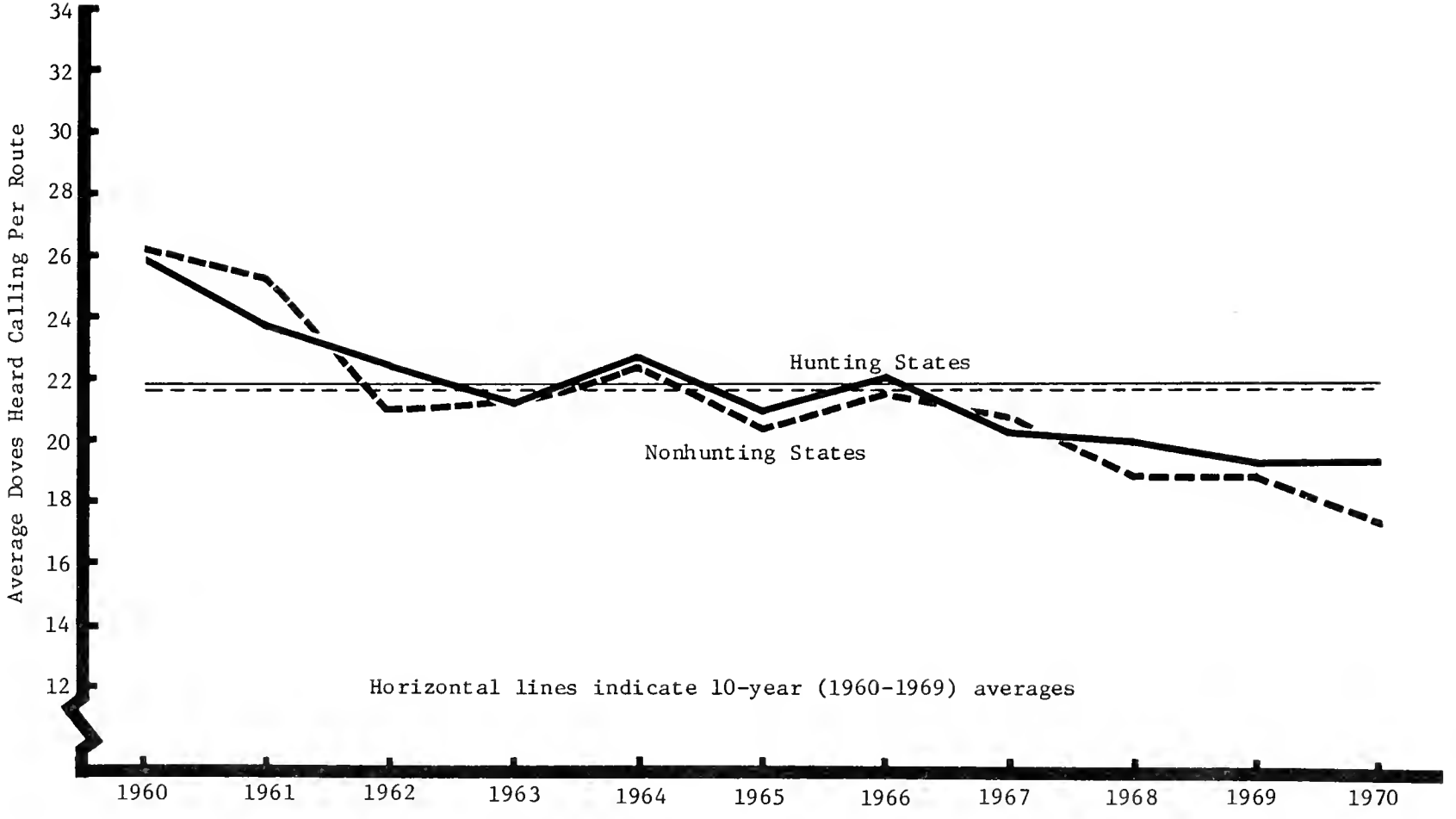


Figure 8.--Breeding mourning dove population indexes for the United States hunting and nonhunting States, 1960-1970

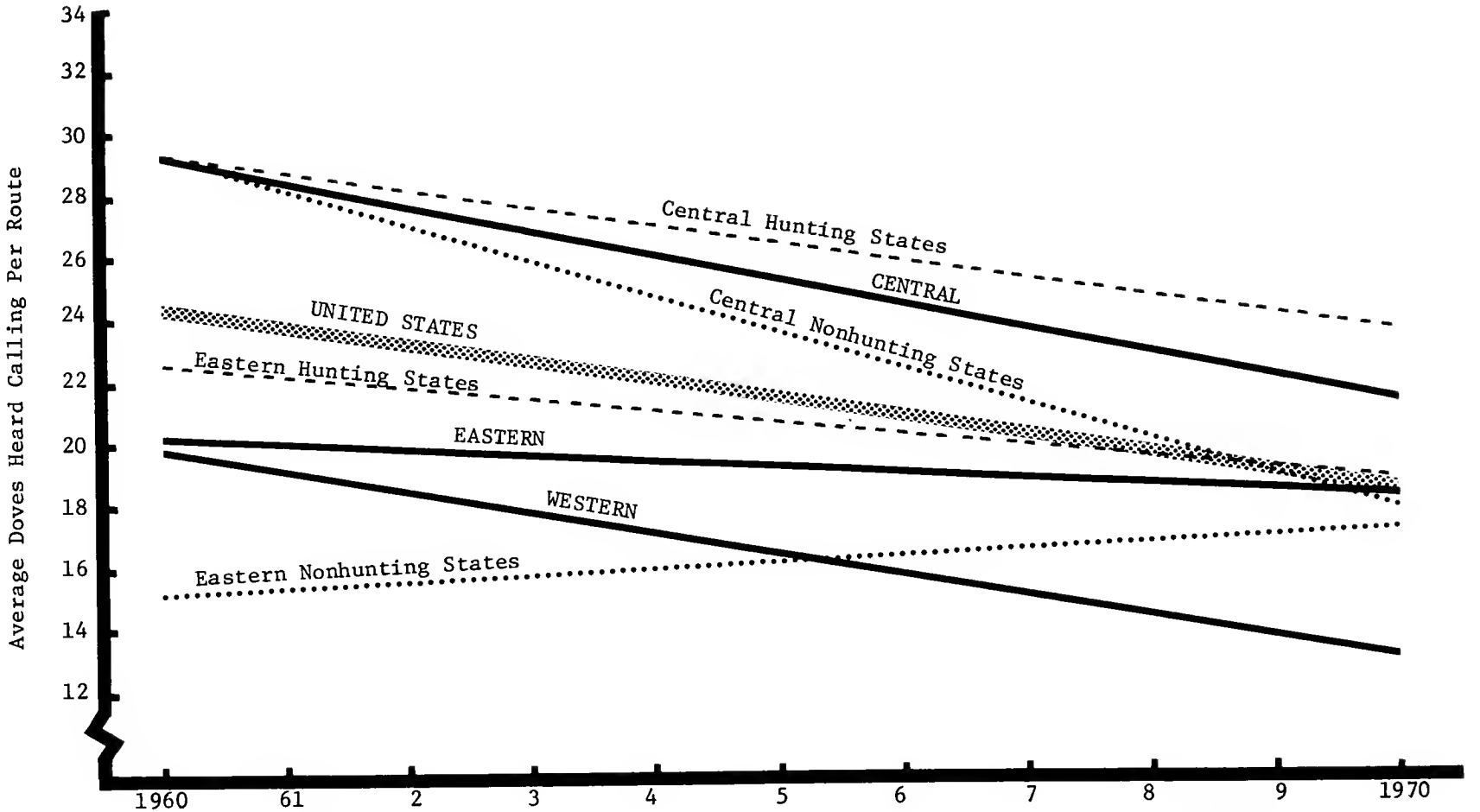


Figure 9.--Linear regression lines of mourning dove call-count data, 1960-1970

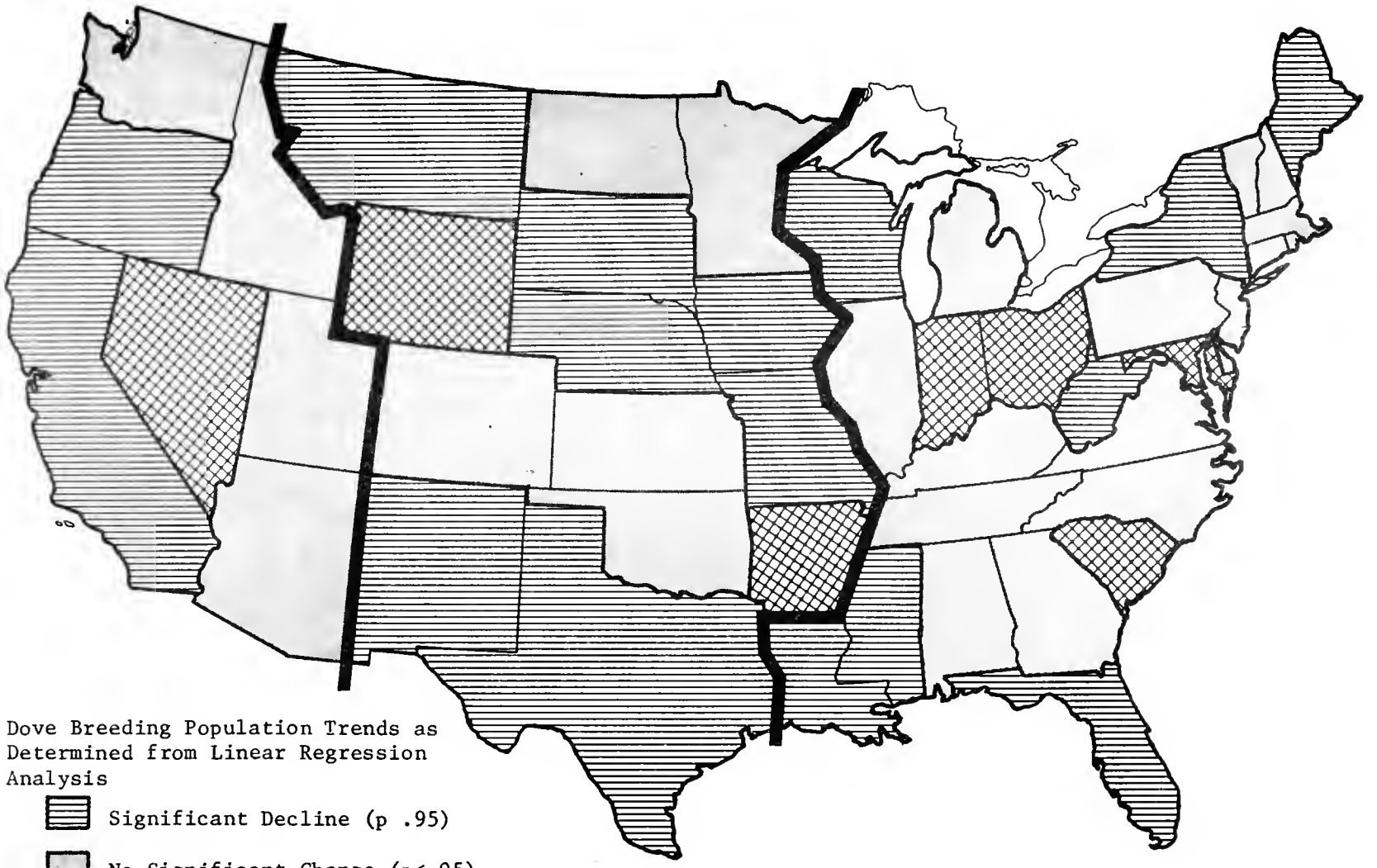


Figure 10.--Trends in mourning dove breeding populations by State, 1960 to 1970

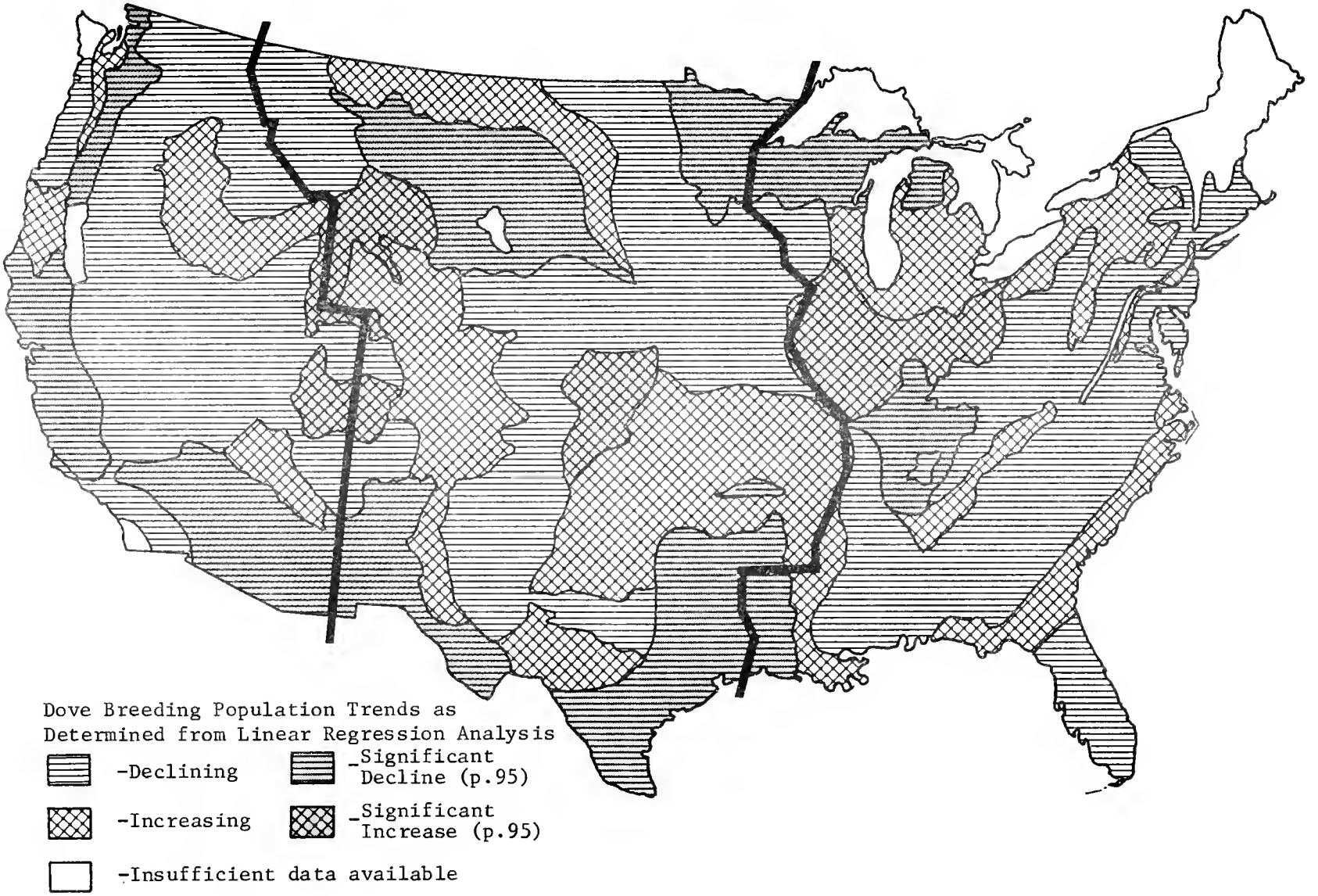


Figure 11.--Trends in mourning dove breeding populations by physiographic region, 1965 to 1970

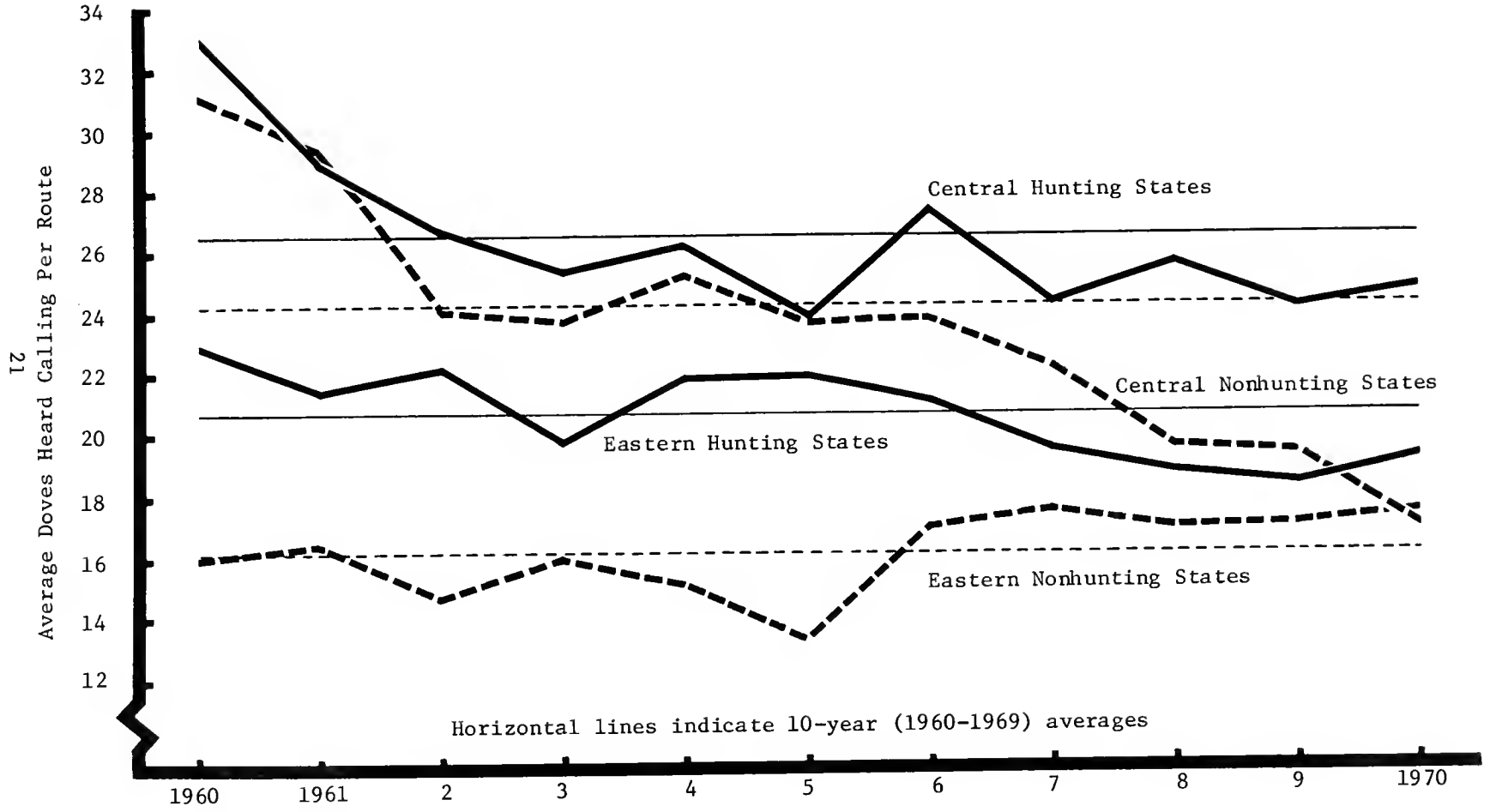


Figure 12.--Breeding mourning dove population indexes for the Eastern and Central Management Unit hunting and nonhunting States, 1960-1970

Regression analysis shows a significant downward trend in the Eastern Unit population between 1960 and 1970; the mean rate of decline was determined to be 1.0 percent per year (table 2). During the same period, the combined hunting States index declined significantly at an average annual rate of 1.8 percent. Although no significant trend was found for the nonhunting States, the index increased at an average rate of 1.3 percent per year (fig. 9). Significant upward population trends were limited to Indiana, Ohio, Maryland, and South Carolina, whereas downward trends were most common in the northern and southern border States (figs. 10, 11).

Status of the Central Management Unit population

1970 population distribution.--Highest population densities in the Central Management Unit were distributed in the east-central section, especially in the Great Plains and Central Lowlands. Low densities were rather uniformly distributed in the northern, western, and southern parts of the Unit (fig. 4). States represented by a mean of 30 or more doves heard per route included Kansas, Nebraska, South Dakota, Oklahoma, and Missouri (fig. 3).

1969 to 1970 population changes.--The Central Management Unit BDI declined 1.8 percent from 22.1 doves heard per route in 1969 to 21.7 doves heard per route in 1970 (table 1). The 1970 population levels remained the same or were generally higher than in 1969 in the southeastern part of the Unit. Population indexes were lower in the northern and western sections (figs. 5, 6). From 1969 to 1970, the combined hunting States index increased 3.3 percent, whereas the combined nonhunting States index decreased 12.8 percent.

1960 to 1970 long-term population trends. -- In 1970, the Central Unit BDI adjusted to a Base-Year declined to its lowest level for the 11-year period (table 2). This represents the fourth successive annual decline. The population index also declined for the fourth successive year in the combined nonhunting States, while the population index for the combined hunting States increased from its near record low in 1969. Current population levels are well below the preceding 10-year means: Central Unit, -14.8 percent; combined hunting States, -6.4 percent; and combined nonhunting States, -29.6 percent (figs. 7, 12).

Regression analysis shows that a significant downward trend in dove population indexes occurred from 1960 to 1970 in the Central Unit. Similar downward trends were observed for the combined hunting States and combined nonhunting States (table 2). The annual rates of decline in the adjusted BDI's were determined as follows: Central Unit, -3.1

percent; combined hunting States, -2.2 percent; and combined nonhunting States, -4.9 percent (fig. 9). Significant upward population trends were limited to two States, Arkansas and Wyoming. Population trends were significantly downward in States bordering the Missouri River and in southern border States (figs. 10, 11).

Status of the Western Management Unit population

1970 population distribution.--Highest population densities in the Western Management Unit were essentially restricted to coastal California and sections of the Columbia Plateau. Lowest densities were distributed through much of the Great Basin and the northwestern part of the Western Unit (fig. 4). Idaho had the highest adjusted BDI of any Western Unit State in 1970, with 22.3 doves heard calling per route (table 2; fig. 3).

1969 to 1970 population changes.--The Western Management Unit BDI declined 11.2 percent from 14.3 doves heard per route in 1969 to 12.7 doves heard per route in 1970 (table 1). The 1970 population levels were generally lower throughout the Unit. Populations increased in several regions, especially in the States of Idaho and Washington (figs. 5, 6). All States within the Western Unit hunt mourning doves.

1960 to 1970 population trends.--The 1970 BDI adjusted to a Base-Year for the Western Unit is the lowest observed for the 11-year period (table 2). This is the sixth successive year without an increase in the BDI. The population index for this Unit in 1970 is 27.1 percent below the preceding 10-year mean (fig. 7).

Regression analysis shows a significant downward trend in the dove population index from 1960 to 1970. The adjusted BDI's declined at an average annual rate of 4.0 percent along the calculated regression line (fig. 9). Between 1960 and 1970, only the State of Nevada had a significant upward population trend. Significant downward trends occurred in California and Oregon during the same period (figs. 10, 11).

Statistical significance of data

1969 to 1970 population changes.--No significant ($p<0.05$) changes occurred in the BDI's of any management unit or in the combined hunting or nonhunting States of any unit between 1969 and 1970. Although not designed to detect population changes within States, the survey showed significant increases in Tennessee and Missouri. In no State did the index decrease significantly (table 1).

A study of physiographic region data obtained from the 1969 and 1970 call-count surveys was also made. As identified in figure 1, significant

($p<0.05$) increases occurred in sections of the Atlantic Coastal Plain (Regions 031 and 035), the Valley and Ridge Province of the Appalachian Highlands (061), and in the Salton Trough of southern California (223). Significant decreases occurred in the Sonoran-Mojave Desert (222) and in part of the Interior Highlands of Arkansas and Oklahoma (151).

1960 to 1970 long-term population trends.--Statistical analyses of the 1960-70 data revealed that significant ($p<0.05$) downward trends in adjusted BDI's occurred in all management units and submanagement units, except in the combined nonhunting States of the Eastern Unit (table 2). No statistical significance could be attached to the observed upward trend shown for the nonhunting States of the Eastern Unit.

For the first time, this report presents the results of long-term BDI data analyzed by State and physiographic region (tables 2 and 3). Seven States were determined to have significant ($p>.95$) upward population trends between 1960 and 1970, while 16 States had downward trends in population (fig. 10). From 1965 to 1970, four of 71 physiographic regions had significant upward population trends, whereas 11 regions had downward trends in population (fig. 11).

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Table 1.--Changes in mourning dove breeding density indexes, 1969-70

State	Comparable routes	Average doves heard/route (weighted) 1/ 1969	1970	Percent change 2/
	EASTERN MANAGEMENT UNIT - HUNTING STATES			
Ala.	28	21.3	18.7	- 12.2
Del.	0			
Fla.	20	7.4	8.5	+ 14.9
Ga.	21	18.2	22.2	+ 22.0
Ill.	13	23.4	28.0	+ 19.7
Ky.	11	37.3	34.5	- 7.5
La.	19	10.2	10.2	0.0
Md.	8	18.1	21.6	+ 19.3
Miss.	19	25.8	27.2	+ 5.4
N.C.	18	29.7	30.5	+ 2.7
Pa.	15	12.4	9.0	- 27.4
R.I. 3/	*2*	*13.0*	*4.5*	*- 65.4*
S.C.	17	28.0	23.1	- 17.5
Tenn.	20	17.4	26.9	+ 54.6**
Va.	8	22.1	19.6	- 11.3
W. Va.	7	4.4	5.1	+ 15.9
Subtotal	226	19.4	20.2	+ 4.1
	EASTERN MANAGEMENT UNIT - NONHUNTING STATES			
Conn.	2	1.5	5.5	+266.7
Ind.	11	34.7	35.5	+ 2.3
Maine 3/	*3*	*1.0*	*0.0*	*-100.0*
Mass.	2	1.9	8.1	+326.3
Mich.	17	9.7	8.7	- 10.3
N.H. 3/	*4*	*3.0*	*3.2*	*+ 6.7*
N.J.	3	20.3	25.4	+ 25.1
N.Y.	11	7.1	5.7	- 19.7
Ohio	10	28.3	31.4	+ 11.0
Vt. 3/	*3*	*0.1*	*0.4*	*+300.0*
Wis.	15	10.4	9.3	- 10.6
Subtotal	81	16.0	16.3	+ 1.9
Eastern Unit Total	307	18.3	19.0	+ 3.8

See footnotes at end of table, p. 29.

Table 1.--Changes in mourning dove breeding density indexes, 1969-70--continued

State	Comparable routes	Average doves heard/route (weighted) 1/		Percent change 2/
		1969	1970	
	CENTRAL MANAGEMENT UNIT - HUNTING STATES			
Ark.	12	23.6	24.3	+ 3.0
Colo.	9	13.5	14.1	+ 4.4
Kans.	16	58.8	54.4	- 7.5
Mo.	19	23.9	29.5	+23.4**
N. Mex.	14	15.6	14.7	- 5.8
Okla.	9	32.5	29.6	- 8.9
S. Dak. 4/	10	32.7	34.7	+ 6.1
Tex.	43	17.6	20.1	+14.2
Subtotal	132	24.6	25.4	+ 3.3
	CENTRAL MANAGEMENT UNIT - NONHUNTING STATES			
Iowa	12	25.8	19.1	-26.0
Minn.	10	8.3	6.8	-18.1*
Mont.	9	9.8	7.4	-24.5
Nebr.	21	41.4	40.9	- 1.2
N. Dak.	20	22.3	18.9	-15.2
Wyo.	9	8.8	7.8	-11.4
Subtotal	81	17.9	15.6	-12.8*
Central Unit Total	213	22.1	21.7	- 1.8

See footnotes at end of table, p. 29.

Table 1.--Changes in mourning dove breeding density indexes, 1969-70--continued

State	Comparable routes	Average doves heard/route (weighted) 1/		Percent change 2/
		1969	1970	
		WESTERN MANAGEMENT UNIT		
Ariz.	40	31.7	23.0	-27.4*
Calif.	49	12.1	11.5	- 5.0
Idaho	11	13.9	18.2	+30.9
Nev.	12	8.2	7.5	- 8.5
Oreg.	18	10.8	7.4	-31.5
Utah	12	10.3	8.5	-17.5
Wash.	17	10.3	11.4	+10.7
Western Unit Total	159	14.3	12.7	-11.2
U.S. Hunt	517	19.7	19.7	± 0
U.S. Nonhunt	162	17.3	15.9	- 8.1
U.S. Total	679	19.1	18.7	- 2.1

1/ Except as noted, State and management unit indexes were obtained from comparable, randomized route data adjusted for variation in the land area of each physiographic region represented.

2/ Probability that observed change represents actual change: *90 percent; **95 percent; ***99 percent.

3/ Rhode Island and Vermont data from randomized routes, Maine and New Hampshire from management routes. These data not represented in management unit means to preserve comparability for Eastern Management Unit dove study.

4/ South Dakota included as nonhunting State in previous reports. Dove hunting reestablished in South Dakota since 1967-68 season.

Table 2.--Trends in mourning dove breeding density indexes by State, 1960-70

State	Weight factor[1]	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE[2][3]											LINEAR REGRESSION, 1960-1970		
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Mean Annual Chg. (BYI) Percent	Mean Annual Chg. (BYI) No. of Doves	Stat. Sign. of Trend
EASTERN MANAGEMENT UNIT - HUNTING STATES															
Ala.	33.32	22.0	19.4	18.9	16.3	21.1	20.5	20.5	19.8	17.1	20.8	18.3	- 0.6	-0.1	n.s.[4]
Del.	1.29	6.2	4.6	5.6	5.1	4.4	5.1	3.8	7.5	5.2	--	--	--	--	--
Fla.	35.82	10.1	9.4	11.4	9.8	11.2	10.5	9.4	9.1	7.6	7.8	9.0	- 2.5	-0.2	p .95
Ga.	37.82	16.9	14.4	16.8	14.4	22.5	18.5	13.1	15.4	14.2	15.5	18.9	0.0	0.0	n.s.
Ill.	35.09	28.3	32.3	26.3	26.9	24.3	23.5	27.0	27.9	27.0	22.1	26.5	- 1.5	-0.4	n.s.
Ky.	26.08	29.8	28.2	28.6	27.0	30.4	32.5	35.3	29.9	26.2	26.1	24.2	- 1.0	-0.3	n.s.
La.	31.14	19.3	17.8	14.2	16.6	13.6	11.6	7.7	8.9	7.4	7.5	7.5	-11.2	-1.3	p .99
Md.	6.55	15.6	14.4	15.8	16.1	16.1	16.0	15.2	20.1	17.5	16.7	20.0	+ 2.4	+0.4	p .95
Miss.	30.63	37.8	33.2	35.4	30.5	35.1	36.8	33.6	27.7	26.4	28.5	30.1	- 2.6	-0.8	p .95
N.C.	22.51	19.7	17.3	19.0	21.0	21.9	24.8	26.4	21.4	22.7	18.4	18.9	+ 0.7	+0.2	n.s.
Pa.	29.01	9.5	9.9	8.2	5.6	7.2	7.4	8.7	11.9	9.0	9.8	7.1	+ 0.4	0.0	n.s.
R.I.[5]	*0.67*	*4.0*	*5.0*	*5.5*	*5.5*	*8.9*	*5.9*	*4.2*	*5.3*	*8.8*	*8.2*	*2.9*	*+ 1.9*	*+0.1*	*n.s.*
S.C.	19.99	25.8	25.5	23.0	23.0	24.1	35.3	34.4	34.2	33.1	33.8	27.9	+ 3.4	+1.0	p .95
Tenn.	27.07	35.6	30.2	34.8	29.2	28.1	30.4	30.4	22.3	23.5	22.5	34.8	- 2.5	-0.7	n.s.
Va.	26.05	30.6	28.7	24.8	25.2	29.0	24.0	29.1	23.6	31.8	24.4	21.6	- 1.5	-0.4	n.s.
W. Va.	15.41	20.1	21.0	44.0	18.5	23.4	22.6	9.8	5.0	5.0	5.7	6.6	-18.5	-2.6	p .95
SUB-TOT/ AVG.	377.78	23.0	21.5	22.2	19.8	21.9	22.0	21.2	19.6	18.9	18.4	19.3	- 1.8	-0.4	p .99
EASTERN MANAGEMENT UNIT - NONHUNTING STATES															
Conn.	3.23	6.5	3.5	3.5	3.0	2.4	1.9	2.9	4.5	4.9	1.2	4.5	- 2.9	-0.1	n.s.
Ind.	23.36	25.1	28.3	23.4	26.8	27.7	20.2	37.2	38.6	41.7	40.2	41.1	+ 6.6	+2.0	p .99
Maine[5]	*19.85*	*3.0*	*3.0*	*3.0*	*1.3*	*0.0*	*0.3*	*1.3*	*0.0*	*1.0*	*1.5*	*0.0*	*-28.0*	*-0.3*	*p .95*
Mass.	5.31	10.6	6.9	9.0	5.2	6.7	7.7	11.0	14.5	4.9	1.4	6.1	- 4.0	-0.3	n.s.
Mich.	37.18	14.0	14.8	11.8	17.4	13.2	8.0	12.3	11.9	9.1	11.8	10.6	- 3.6	-0.4	p .90
N.H.[5]	*5.80*	*6.8*	*4.6*	*3.4*	*3.1*	*6.3*	*10.6*	*7.5*	*5.0*	*4.4*	*4.0*	*4.3*	*- 1.1*	*-0.1*	*n.s.*
N.J.	4.91	32.7	29.0	28.8	29.5	30.4	25.7	24.2	20.1	30.0	26.3	32.9	- 1.0	-0.3	n.s.
N.Y.	30.49	8.8	7.2	8.3	7.8	7.0	7.1	7.9	7.8	6.8	5.8	4.7	- 3.7	-0.3	p .99
Ohio	26.42	14.8	17.9	21.4	17.5	16.8	19.1	26.3	25.5	27.0	30.6	34.0	+ 8.3	+1.7	p .99
Vt.[5]	*5.95*	*8.0*	*0.0*	*2.0*	*2.0*	*2.0*	*1.0*	*6.0*	*5.0*	*3.5*	*2.0*	*8.0*	*+ 6.0*	*+0.2*	*n.s.*
Wis.	36.07	18.3	18.1	12.7	14.1	15.2	16.1	11.1	13.5	11.4	9.8	8.8	- 6.0	-0.8	p .99
SUB-TOT/ AVG.	166.97	16.0	16.4	14.7	16.0	15.2	13.4	17.1	17.6	17.0	17.1	17.5	+ 1.3	+0.2	n.s.
EMU TOT/ AVG.	544.75	20.8	20.0	19.9	18.6	19.8	19.4	20.0	19.0	18.3	18.0	18.8	- 1.0	-0.2	p .99

See footnotes at end of table, p. 32.

Table 2--Trends in mourning dove breeding density indexes by State, 1960-1970--continued

State	Weight factor[1]	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE [2] [3]											LINEAR REGRESSION, 1960-1970		
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Mean Annual Chg.(BYI) Percent	No. of Doves	Stat.Sign. of Trend
CENTRAL MANAGEMENT UNIT - HUNTING STATES															
Ark.	34.37	17.4	19.0	10.5	16.0	16.8	14.8	16.5	20.7	20.0	22.3	22.9	+4.1	+0.7	p .95
Colo.	67.18	28.8	13.8	13.8	11.0	13.1	11.5	14.8	16.1	13.7	19.7	20.5	-0.4	-0.1	n.s.
Kans.	52.43	54.4	55.2	56.2	49.8	53.1	48.2	51.8	60.3	59.2	65.6	60.7	+1.7	+0.9	p .90
Mo.	45.10	50.2	45.2	42.7	36.7	40.2	36.0	39.3	36.6	39.1	25.2	31.1	-4.4	-1.7	p .99
N. Mex.	77.98	32.5	21.8	19.2	18.1	20.6	19.3	28.4	8.5	16.0	11.0	10.4	-8.6	-1.6	p .95
Okla.	44.40	40.9	41.6	36.4	39.9	37.7	34.6	29.3	37.9	41.3	33.9	30.9	-1.9	-0.7	p .90
S. Dak.[6]	49.20	40.2	48.5	37.4	40.6	39.0	35.1	45.3	28.2	32.9	30.1	31.9	-3.8	-1.3	p .95
Tex.	170.03	22.9	18.6	19.4	17.7	17.4	16.4	17.8	16.8	15.8	15.1	17.3	-2.8	-0.5	p .99
SUB-TOT/ AVG.	540.69	33.0	28.9	26.7	25.4	26.3	24.0	27.4	24.4	25.7	24.2	24.9	-2.2	-0.6	p .95
CENTRAL MANAGEMENT UNIT - NONHUNTING STATES															
Iowa	36.15	30.6	38.3	37.1	33.5	34.9	29.0	33.2	34.1	30.7	25.8	19.1	-3.6	-1.2	p .95
Minn.	54.09	15.0	19.3	15.9	16.2	20.5	18.6	18.7	16.7	19.1	10.0	8.2	-3.5	-0.6	n.s.
Mont.	94.47	18.3	15.7	10.4	15.1	15.4	15.7	17.1	18.7	5.7	6.6	5.0	-7.6	-1.0	p .95
Nebr.	49.69	109.3	88.6	69.9	58.7	66.1	55.6	48.5	40.0	47.8	47.7	47.2	-8.9	-5.4	p .99
N. Dak.	45.54	21.2	22.3	20.1	20.0	20.2	23.4	20.7	20.7	24.2	20.2	17.2	-0.6	-0.1	n.s.
Wyo.	62.33	10.0	11.8	10.8	12.7	9.8	12.1	15.9	13.0	9.3	20.6	18.3	+5.8	+0.7	p .95
SUB-TOT/ AVG.	342.27	31.2	29.4	24.1	23.8	25.2	23.7	23.9	22.3	19.7	19.5	17.1	-4.9	-1.2	p .99
CMU TOT/ AVG.	882.96	32.3	29.1	25.7	24.8	25.9	23.9	26.1	23.6	23.3	22.4	21.9	-3.1	-0.8	p .99

See footnotes at end of table, p. 32.

Table 2.--Trends in mourning dove breeding density indexes by State, 1960-1970--continued

State	Weight factor 1/	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUTE 2/ 3/											LINEAR REGRESSION, 1960-1970		
		1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	Mean Annual Chg.(BYI) Percent	No. of Doves	Stat.Sign. of Trend
WESTERN MANAGEMENT UNIT															
Ariz.	72.65	19.1	34.3	23.8	22.7	27.6	26.6	30.4	27.6	23.8	27.0	19.6	- 0.5	-0.1	n.s.
Calif.	101.71	36.2	26.0	29.2	29.2	32.0	21.6	17.3	14.2	12.0	11.5	11.0	-12.4	-2.5	p .99
Idaho	54.37	20.4	18.0	18.3	18.3	20.6	19.4	18.6	17.8	18.0	17.0	22.3	+ 0.1	0.0	n.s.
Nev.	71.27	1.9	2.3	1.2	1.8	2.9	2.7	4.0	4.4	8.2	6.3	5.8	+22.7	+0.6	p .99
Oreg.	62.27	19.2	21.2	18.2	16.8	18.1	14.1	14.0	12.9	13.2	14.9	10.2	- 5.6	-0.9	p .99
Utah	53.34	18.6	14.8	13.6	13.4	12.9	13.7	14.8	22.2	12.3	8.6	7.1	- 4.4	-0.6	n.s.
Wash.	43.87	10.5	9.2	11.0	9.8	13.2	13.1	13.3	11.4	10.5	11.1	12.3	+ 1.5	+0.2	n.s.
WMU TOT/ AVG.	459.48	19.5	19.1	17.7	17.3	19.5	16.4	16.3	15.7	14.0	13.9	12.4	- 4.0	-0.7	p .99
TOTAL HUNTING STATES	1,377.95	25.8	23.6	22.4	21.2	22.8	20.9	22.0	20.2	19.9	19.2	19.2	- 2.5	-0.6	p .99
TOTAL NONHUNT. STATES	509.24	26.2	25.2	21.0	21.2	22.4	20.4	21.6	20.8	18.8	18.7	17.3	- 3.3	-0.7	p .99
U.S.TOT/ AVG.	1,887.19	25.9	24.0	22.0	21.2	22.7	20.8	21.9	20.4	19.6	19.0	18.7	- 2.8	-0.6	p .99

1/ Assigned State land-area value.

2/ From a Base Year, average doves heard calling per route for each State has been adjusted annually according to the percent change from the preceding year in counts on comparable routes. Except as noted, percent changes between years have been based upon unweighted, randomized data for the period 1959 to 1965 inclusive. Annual percent changes since 1966 have been derived from randomized data weighted by physiographic regions within States. The Base Year (mean of 1966 and 1967) was changed from previous reports in 1967 (Ruos and MacDonald, 1968).

3/ Percent departures calculated from data carried to three decimal places; hence, apparent rounding errors. Unit and subunit averages calculated by weighting individual State indexes; hence, change in unit long-term-trend index may not indicate precisely the same percent change as the 2-year comparison.

4/ Not statistically significant ($p<.90$).

5/ Indexes for Maine, New Hampshire, Rhode Island, and Vermont have not been adjusted to a random base-year and have not been included in the unit "weighted means."

6/ South Dakota included as a nonhunting State in previous reports. Hunting permitted in 1967, 1968, 1969.

Table 3.--Trends in mourning dove breeding density indexes by physiographic region, 1965-70

Region	Weight factor 1/	ADJUSTED AVERAGE DOVES HEARD/ROUTE 2/3/						LINEAR REGRESSION, 1965-1970		
		1965	1966	1967	1968	1969	1970	Mean Annual Chg. (BYI) Percent	No. of Doves	Stat. Sign. of Trend
EASTERN MANAGEMENT UNIT										
010	32.10	8.8	4.3	3.8	3.6	2.8	2.0	-26.3	-1.1	p .95
031	15.34	29.5	30.3	28.5	28.2	21.5	24.9	- 5.1	-1.4	p .90
032	16.40	53.0	39.3	45.8	47.9	44.5	39.6	- 3.1	-1.4	n.s.
033	24.79	13.4	10.2	10.1	9.1	9.1	11.5	- 3.7	-0.4	n.s.
034	63.72	26.8	22.9	20.6	17.7	20.4	21.2	- 5.0	-1.1	n.s.
035	20.50	27.1	28.4	29.1	27.4	28.7	34.8	+ 3.8	+1.1	n.s.
036	15.69	18.1	19.6	18.0	16.6	16.3	16.3	- 3.3	-0.6	p .95
037	33.14	12.1	12.7	11.8	10.5	16.0	17.6	+ 8.1	+1.0	n.s.
041	39.35	19.3	21.1	17.6	22.8	17.9	16.7	- 2.6	-0.5	n.s.
042	3.51	14.6	24.1	24.6	35.7	31.4	27.3	+11.4	+2.8	n.s.
051	1.93	No Estimate						n.e.	n.e.	n.e.
052	6.09	10.0	13.2	11.2	13.2	7.7	11.8	- 1.4	-0.2	n.s.
061	17.62	25.6	25.6	20.5	16.4	19.1	33.0	+ 1.7	+0.4	n.s.
062	18.99	17.0	15.4	12.2	15.6	16.8	14.4	- 1.0	-0.2	n.s.
070	2.40	No Estimate				0.0	0.0	n.e.	n.e.	n.e.
081	27.02	7.4	9.2	14.5	12.2	9.3	7.9	+ 0.1	0.0	n.s.
082	1.32	n.e.	3.0	0.0	1.0	0.0	0.0	-62.0	-0.6	n.s.
085	32.72	5.4	6.5	4.9	3.3	4.1	3.7	-10.3	-0.5	p .90
086	7.27	11.2	10.8	7.9	9.4	9.7	9.5	- 3.0	-0.3	n.s.
091	9.28	n.e.	29.7	40.4	19.7	5.2	14.9	-28.2	-6.5	n.s.
092	10.00	No Estimate				0.4	0.7	n.e.	n.e.	n.e.
093	20.12	No Estimate				0.0	0.0	n.e.	n.e.	n.e.
095	1.64	n.e.	n.e.	1.4	1.4	1.4	3.0	n.e.	n.e.	n.e.
100	6.71	n.e.	0.7	0.0	0.0	0.0	0.0	-70.8	-0.1	n.s.
111	25.51	43.3	45.1	39.3	38.5	35.6	35.1	- 5.0	-2.0	p .99
112	6.70	18.2	31.3	17.0	14.2	20.8	17.7	- 5.2	-1.1	n.s.
113	2.07	27.0	27.0	10.9	17.6	15.2	17.5	-11.0	-2.2	n.s.
121	46.46	10.0	15.6	15.7	12.6	15.3	13.1	+ 2.4	+0.3	n.s.
123	12.09	22.7	18.6	23.0	19.8	15.3	16.0	- 6.8	-1.3	p .90
124	56.27	28.2	32.9	35.3	36.3	34.1	40.1	+ 5.5	+1.8	p .95
141	0.27	30.3	26.2	32.6	33.5	27.8	30.7	+ 0.7	+0.2	n.s.
EMU TOT/ AVG. 4/	577.02	19.4	20.0	19.0	18.3	18.0	18.8	- 1.0	-0.2	p .99

See footnotes at end of table, p. 36.

Table 3.--Trends in mourning dove breeding density indexes by physiographic region, 1965-1970--continued

Region	Weight factor 1/	ADJUSTED AVERAGE DOVES HEARD/ROUTE 2/3/						LINEAR REGRESSION, 1965-1970		
		1965	1966	1967	1968	1969	1970	Mean Annual Chg. (BYI) Percent	No. of Doves	Stat. Sign. of Trend
CENTRAL MANAGEMENT UNIT										
010	30.37	8.8	4.3	3.8	3.6	2.8	2.0	-26.3	- 1.1	p .95
035	16.60	27.1	28.4	29.1	27.4	28.7	34.8	+ 3.8	+ 1.1	n.s.
036	77.45	18.1	19.6	18.0	16.6	16.3	16.3	- 3.3	- 0.6	p .95
122	64.68	34.1	37.0	33.6	35.5	27.4	25.1	- 6.2	- 2.1	p .90
123	2.54	22.7	18.6	23.0	19.8	15.3	16.0	- 6.8	- 1.3	p .90
124	0.82	28.2	32.9	35.3	36.3	34.1	40.1	+ 5.5	+ 1.8	p .95
125	58.68	38.9	46.5	43.1	50.8	37.7	33.2	- 3.2	- 1.3	n.s.
126	71.40	35.4	36.0	43.3	43.6	37.9	43.1	+ 3.2	+ 1.3	n.s.
130	14.35	50.9	67.8	37.4	49.3	45.3	41.5	- 5.9	- 2.9	n.s.
131	46.47	18.5	15.7	12.9	20.7	24.1	19.6	+ 6.1	+ 1.1	n.s.
132	81.54	41.1	45.0	37.1	23.0	21.0	18.4	-17.9	- 5.7	p .99
133	2.89	5.0	5.0	0.0	n.e.	41.0	71.1	n.s.	n.s.	n.s.
134	97.09	27.5	22.0	20.0	24.2	23.8	22.9	- 1.6	- 0.4	n.s.
135	25.78	50.8	53.1	61.7	59.3	64.8	66.7	+ 5.6	+ 3.2	p .99
136	16.40	16.6	15.4	14.7	12.6	19.4	20.7	+ 5.4	+ 0.9	n.s.
137	10.54	2.3	11.0	4.2	6.1	7.4	11.1	+16.2	+ 1.5	n.s.
138	19.75	114.3	165.0	28.7	41.6	14.8	17.3	-46.5	-26.4	p .90
139	22.05	1.8	1.6	24.5	8.7	19.8	17.0	+40.0	+ 3.3	n.s.
141	27.75	30.3	26.2	32.6	33.5	27.8	30.7	+ 0.7	+ 0.2	n.s.
142	3.11	19.4	7.4	5.0	2.3	3.5	2.3	-47.4	- 2.9	p .95
151	4.70	6.7	20.2	13.0	21.0	21.5	15.9	+10.9	+ 1.7	n.s.
152	6.98	3.0	3.0	3.3	3.9	4.9	3.3	+ 6.5	+ 0.2	n.s.
160	28.53	2.9	5.1	2.6	4.4	7.5	5.2	+14.1	+ 0.6	n.s.
170	24.23	10.9	14.5	17.2	8.1	13.4	17.9	+ 4.9	+ 0.6	n.s.
180	23.58	3.7	5.6	6.4	7.7	7.7	7.4	+12.7	+ 0.7	p .95
190	33.18	8.2	9.9	7.1	6.1	7.2	8.2	- 3.3	- 0.3	n.s.
212	4.68	8.2	22.7	55.7	9.9	14.4	5.4	-12.1	- 2.4	n.s.
213	6.02	0.9	1.4	4.0	4.2	6.2	8.1	+89.5	+ 1.4	p .99
214	11.49	8.3	16.9	7.1	9.0	10.3	8.8	- 4.3	- 0.5	n.s.
216	7.07	84.7	75.6	28.7	46.5	20.6	17.9	-30.9	-13.7	p .95
224	31.91	20.5	18.7	16.8	15.2	15.5	13.2	- 8.0	- 1.4	p .99
225	10.33	n.e.	5.6	2.2	3.9	6.1	12.3	+39.7	+ 1.7	n.s.
CMU TOT/ AVG. 4/	882.96	23.9	26.1	23.6	23.3	22.4	21.9	- 3.1	- 0.8	p .99

See footnotes at end of table, p. 36.

Table 3.--Trends in mourning dove breeding density indexes by physiographic region, 1965-1970--continued

Region	Weight factor[1/]	ADJUSTED AVERAGE DOVES HEARD/ROUTE[2/3/] 1965	1966	1967	1968	1969	1970	LINEAR REGRESSION, 1965-1970 Mean Annual Chg. (BYI) Percent	No. of Doves	Stat. Sign. of Trend
WESTERN MANAGEMENT UNIT										
180	8.00	3.7	5.6	6.4	7.7	7.7	7.4	+12.7	+ 0.7	p .95
190	32.19	8.2	9.9	7.1	6.1	7.2	8.2	- 3.3	- 0.3	n.s.
201	27.15	8.9	9.9	9.0	11.2	9.1	8.3	- 1.0	- 0.1	n.s.
202	5.05	6.5	7.2	5.8	8.4	5.9	7.5	+ 1.6	+ 0.1	n.s.
203	19.43	6.8	16.0	21.1	16.4	17.3	18.6	+11.2	+ 1.7	n.s.
204	11.00	12.2	23.3	22.2	20.9	14.4	22.6	+ 3.6	+ 0.7	n.s.
205	6.17	92.8	172.3	39.8	30.9	44.3	28.7	-30.6	-20.4	n.s.
211	8.20	7.7	10.2	9.5	5.0	0.0	6.7	-17.1	- 1.1	n.s.
212	5.96	8.2	22.7	55.7	9.9	14.4	5.4	-12.1	- 2.4	n.s.
213	12.24	0.9	1.4	4.0	4.2	6.2	8.1	+89.5	+ 1.4	p .99
214	12.54	8.3	16.9	7.1	9.0	10.3	8.8	- 4.3	- 0.5	n.s.
215	13.78	6.9	11.8	13.7	10.0	29.2	14.4	+20.3	+ 2.5	n.s.
216	1.46	84.7	75.6	28.7	46.5	20.6	17.9	-30.9	-13.7	p .95
221	115.89	11.1	11.5	14.1	13.8	10.2	9.0	- 3.6	- 0.4	n.s.
222	35.86	50.0	49.5	36.8	31.1	27.6	18.7	-18.0	- 6.5	p .99
223	4.20	25.4	21.9	22.4	18.5	19.6	26.1	- 0.9	- 0.2	n.s.
224	24.20	20.5	18.7	16.8	15.2	15.5	13.2	- 8.0	- 1.4	p .99
231	7.99	16.9	12.1	11.9	12.2	15.2	11.2	- 4.0	- 0.5	n.s.
232	14.07	7.9	8.1	5.5	4.9	3.0	2.1	-24.2	- 1.3	p .99
233	4.42	46.6	20.0	19.0	No Estimate			n.e.	n.e.	n.e.
234	16.87	11.0	12.2	11.9	10.9	9.3	10.7	- 2.9	- 0.3	n.s.
241	8.84	0.5	0.0	2.5	2.5	0.8	0.8	+10.1	+ 0.1	n.s.
242	2.95	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	n.s.
243	8.29	28.2	10.1	4.0	28.2	2.0	6.0	-24.1	- 3.2	n.s.
244	10.48	6.6	5.4	4.9	6.8	7.3	7.1	+ 4.7	+ 0.3	n.s.
245	13.01	20.5	15.3	12.6	13.3	13.5	11.1	-10.0	- 1.5	p .95

See footnotes at end of table, p. 36.

Table 3.--Trends in mourning dove breeding density indexes by physiographic region, 1965-1970--continued

Region	Weight factor 1/	ADJUSTED AVERAGE DOVES HEARD/ROUTE 2/3/ 1965	1966	1967	1968	1969	1970	LINEAR REGRESSION, 1965-1970 Mean Annual Chg. (BYI) Percent	No. of Doves	Stat. Sign. of Trend
WESTERN MANAGEMENT UNIT (continued)										
246	19.64	31.2	26.2	22.8	23.5	21.3	21.1	- 7.4	- 1.8	p .95
247	8.10	7.4	5.2	4.3	1.8	6.0	6.0	- 3.9	- 0.2	n.s.
250	1.50	N o E s t i m a t e						n.e.	n.e.	n.e.
WMU TOT/ AVG. 4/	459.48	16.4	16.3	15.7	14.0	13.9	12.4	- 4.0	- 0.7	p .99

1/ Assigned physiographic region land-area value.
2/ From a Base Year, average doves heard calling per route for each physiographic region has been adjusted annually according to the percent change from the preceding year in counts on comparable routes. The base year represents the mean numbers of doves heard per route in 1968, 1969, and 1970; the resultant value being assigned to 1969.
3/ When a physiographic region is bisected by a management unit boundary, its mean breeding density index is assigned to both units.
4/ The management unit breeding density indexes are obtained from Table 2.

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