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MOURNING DOVE STATUS REPORT

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UNITED STATES DEPARTMENT OF THE INTERIOR

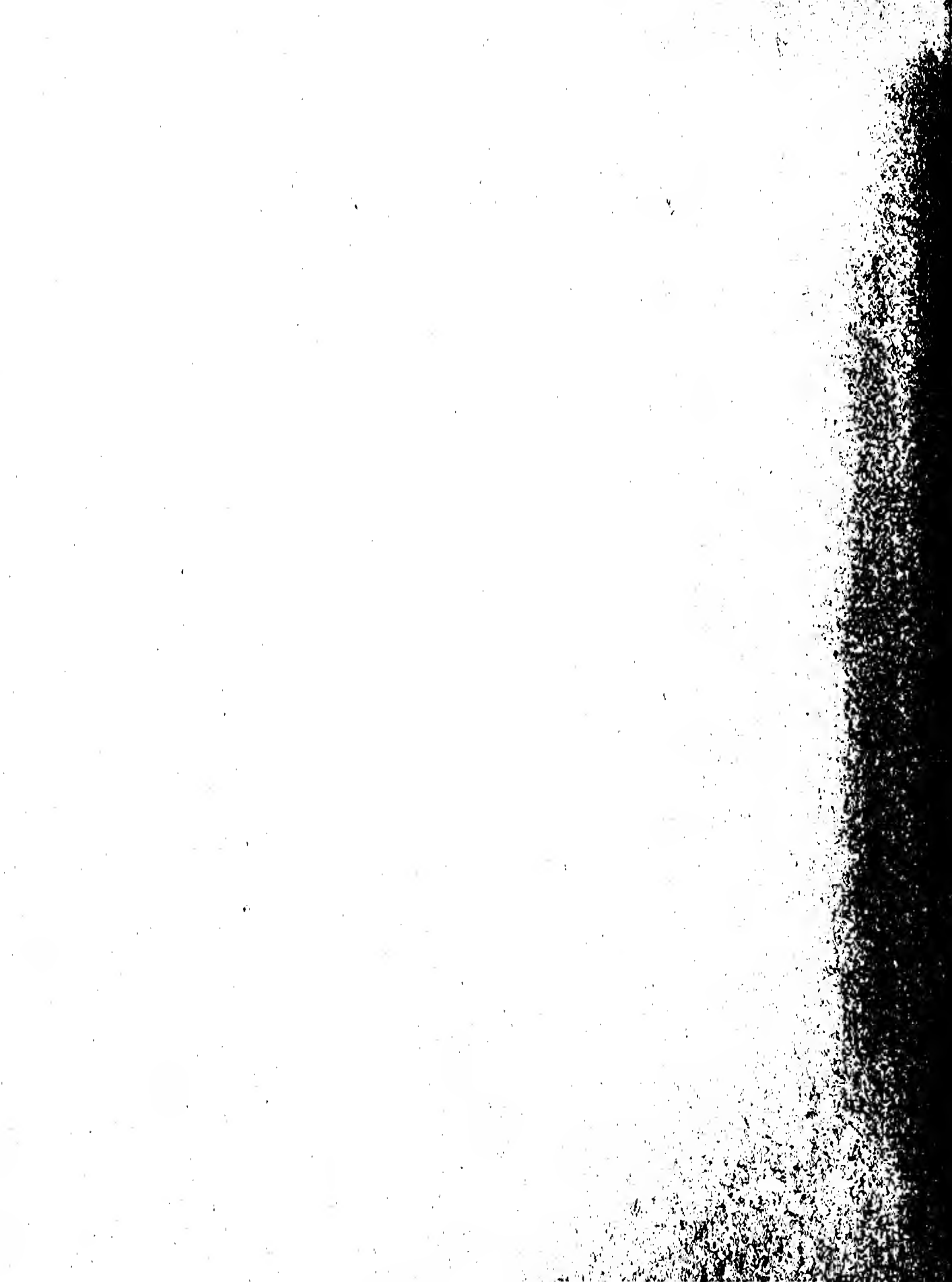
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Special Scientific Report—Wildlife No. 176

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UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Sport Fisheries and Wildlife

MOURNING DOVE STATUS REPORT, 1972

Compiled by

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Office of Migratory Bird Management



Bureau of Sport Fisheries and Wildlife
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ABSTRACT

Mourning dove population indices, as determined from the nationwide Call-Count Survey, increased from 1971 to 1972 by 2 percent in the Eastern Management Unit, by 17 percent in the Central Management Unit, and by 12 percent in the Western Management Unit. The changes were not statistically significant. The 1972 indices were below the 10-year means, 1962-71, by 3 percent in the Eastern Unit and 13 percent in the Western Unit, but were 2 percent above the 10-year mean in the Central Unit. Regression analyses of the call-count data for 1962-72 indicate a statistically significant downward trend in dove breeding populations in all management units; mean rates of decline per year were 1 percent in the Eastern, 2 percent in the Central, and 4 percent in the Western Unit.

Changes in the population indices are described by State and physiographic region. For the southern two-thirds of the United States, the 1972 indices were generally higher than those of 1971, except for the Atlantic States from Virginia to Georgia, where they were lower. In the northern one-third of the Nation, no appreciable change in population level occurred. Regression analyses of 11 years' data, 1962-72, indicate a statistically significant downward trend in population in much of the area represented by the mid-Atlantic, Great Plains, and Pacific States. Trends are significantly upward in eight widely distributed midlatitude States.

INTRODUCTION

Management of mourning doves in the United States essentially involves the regulation of hunting to achieve proper harvest. The Call-Count Survey, conducted annually since 1953 by Federal, State, and independent observers, provides population index 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 breeding population of mourning doves in 1972.

Two versions of the dove status report, one preliminary and one final, are prepared annually. In 1972 the preliminary report was mailed to members of the Dove Regulations Committee a week before the regulations meeting in June in Washington, D.C. This timely distribution was made possible by the promptness of cooperators in sending 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 report.

Basic data gathering and analyzing procedures used in this report were similar to those used in 1971 (Ruos 1972), although several changes in data analysis have been made.

PROCEDURES

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 on more than 800 established routes. Each call-count route has twenty 3-minute listening stations spaced at 1-mile intervals; the routes are usually on lightly traveled secondary roads.

Each route is checked once between May 20 and June 10. Beginning in 1972, cooperators were instructed to run their routes between May 20 and May 31. An extension to June 10 was provided for cooperators unable to complete their assignments during the desired survey period. Intensive studies in the eastern United States (Foote and Peters 1952) indicated that dove calling is relatively stable during the survey period. Call-count Surveys are not made when wind velocities exceed 12 miles per hour or when it is raining.

Records are kept on all doves seen or heard calling along the routes. The numbers of doves heard calling during the 3-minute listening periods are used 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 supplementary data from past call counts has been completed (manuscript in preparation).

Routes on which no doves were heard or seen for 2 successive years are identified as Automatic Zero Routes. Once designated, these routes are no longer run annually. Nevertheless, they continue to be included in the survey analysis. Automatic Zero Routes are subject to periodic reexamination.

Quality checks of field data

As in previous years (Ruos 1972), all 1972 survey reports were examined for accuracy, completeness, and data comparability between identical routes run in both the current and preceding years. Year-to-year differences in quality check criteria have prevailed since establishment of the nationwide survey. These criteria were standardized in 1972. Data from the 1966-67-through 1971-72 analysis were reexamined employing these standardized quality checks. The results of these analyses are presented in Table 3 for States and management units.

Randomization of call-count routes

The original Call-Count Survey routes, established between 1951 and 1956, were frequently selected in areas of high dove density. These were gradually replaced by more than 900 randomly selected routes between 1957 and 1970 in all 48 conterminous States (Ruos 1972).

Breeding Density Index

The mean number of doves heard calling per route represents the Breeding Density Index (BDI). Before 1966, State indices were represented by unadjusted values. Management unit (Fig. 1) indices, however, were adjusted by the proportional area of dove habitat that each State represented within a management unit. Beginning in 1966, State BDI's were determined from indices within each physiographic region (Fig. 2) weighted by the proportional land area that the region represented within a State. Management unit indices were then obtained from State BDI's adjusted for differences in land area that each State represented within the unit. Current weighting values for States and physiographic regions within management units are shown in Tables 3 and 4.

Determination of population changes

Year-to-year changes in breeding population levels were determined from comparable data (Table 1). Routes run under acceptable conditions by the same observer in successive years were deemed comparable and data from different observers were accepted when changes in number of doves heard did not exceed expected values between years (Ruos 1972).

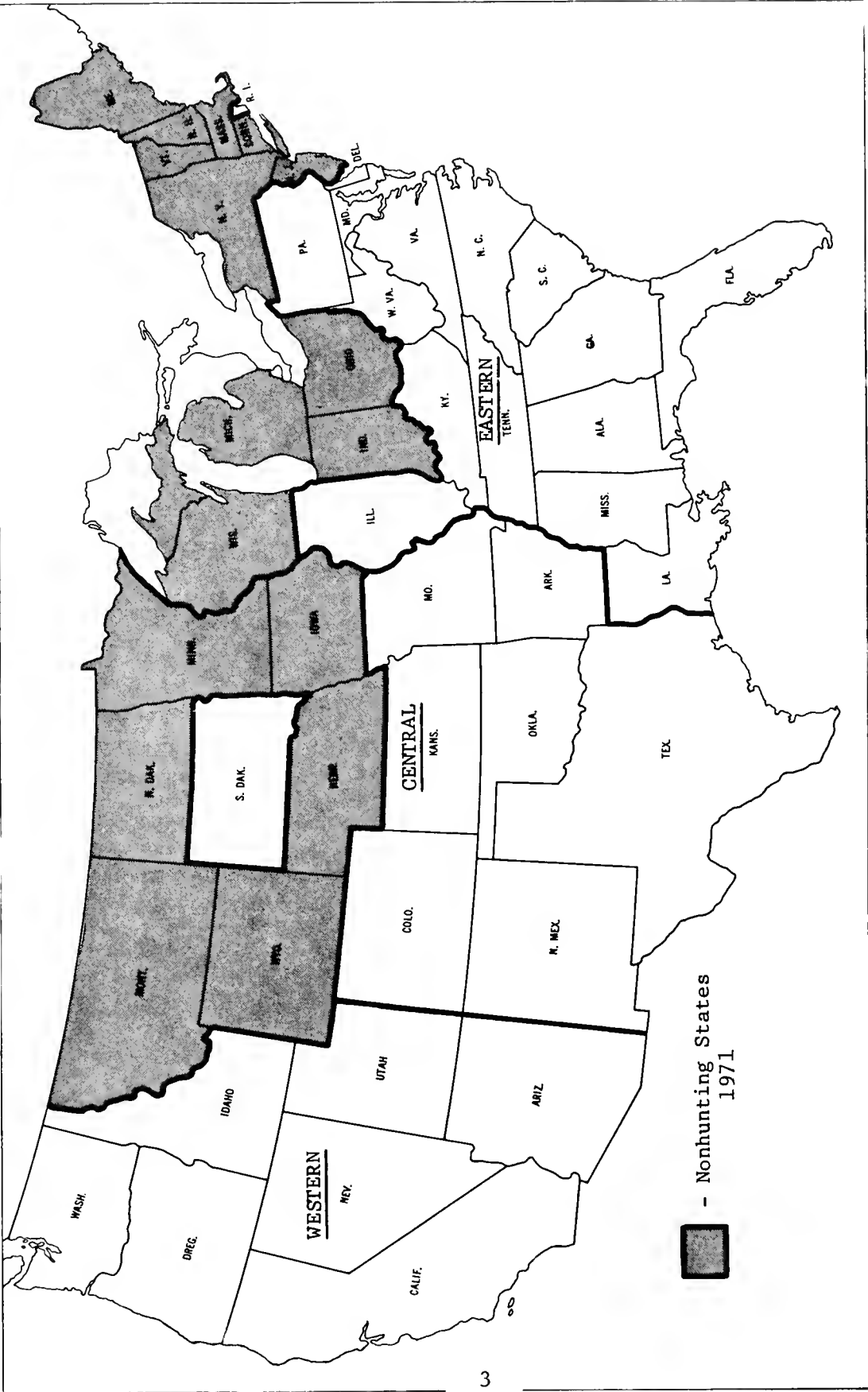
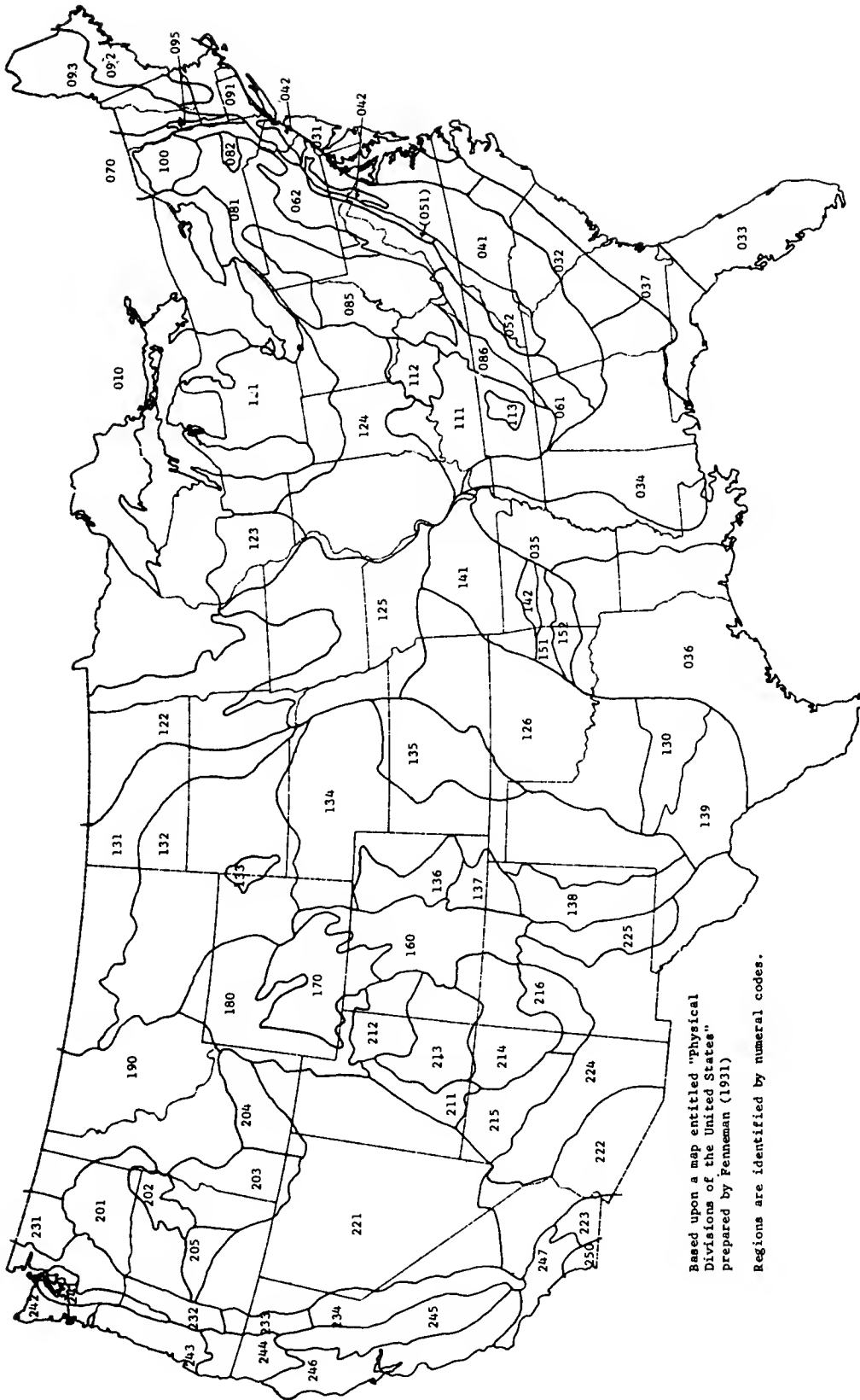


Figure 1.--Mourning dove management units.



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

Regions are identified by numeral codes.

Figure 2.--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)]

<u>Description</u>	<u>Stratum Code</u>	<u>Description</u>	<u>Stratum Code</u>	<u>Description</u>	<u>Stratum Code</u>
Laurentian Upland Division		Interior Plains Division		Intermontane Plateaus Division	
Superior Upland Province	010	Interior Low Plateaus Province		Columbia Plateaus Province	
Atlantic Plain Division		Highland Rim section	111	Walla Walla Plateau	201
Coastal Plain Province		Lexington Plain	112	Blue Mountain section	202
Embayed section	031	Nashville Basin	113	Payette section	203
Upper Coastal Plain	032	Central Lowland Province		Snake River Plain	204
Floridian section	033	Eastern lake section	121	Harney section	205
East Gulf Coastal Plain	034	Western lake section	122	Colorado Plateaus Province	
Mississippi Alluvial Plain	035	Wisconsin Driftless section	123	High Plateaus of Utah	211
West Gulf Coastal Plain	036	Till Plains	124	Uinta Basin	212
Lower Coastal Plain	037	Dissected Till Plains	125	Canyon Lands	213
		Osage Plains	126	Navajo section	214
Appalachian Highlands Division		Great Plains Province		Grand Canyon section	215
Piedmont Province		Central Texas section	130	Datil section	216
Piedmont Uplands	041	Missouri Plateau, glaciated	131	Basin and Range Province	
Piedmont Lowlands	042	Missouri Plateau, unglaciated	132	Great Basin	221
Blue Ridge Province	051	Black Hills	133	Sonoran Desert	222
Northern section	052	High Plains	134	Sonoran Trough	223
Southern section		Plains Border	135	Salton Trough	224
Valley and Ridge Province	061	Colorado Piedmont	136	Mexican Highland	225
Tennessee section	062	Raton section	137	Sacramento section	
Middle and Hudson Valley section		Pecos Valley	138		
St. Lawrence Valley Province	070	Edwards Plateau	139	Pacific Mountain Division	
Champlain and Northern section		Interior Highlands Division		Cascade Sierra Mountains Province	231
Appalachian Plateaus Province		Ozark Plateaus Province		Northern Cascade Mountains	232
Mohawk and Allegheny section	081	Springfield-Salem plateaus	141	Middle Cascade Mountains	233
Catskill section	082	Boston "Mountains"	142	Southern Cascade Mountains	234
Kanawha section	085	Quachita Province		Sierra Nevada	
Cumberland section	086	Arkansas Valley	151	Pacific Border Province	
New England Province		Ouachita Mountains	152	Puget Trough	241
Southern New England section	091	Rocky Mountain Division		Olympic Mountains	242
Northern New England section	092	Southern Rocky Mountains Province	160	Oregon Coast Range	243
Mountain section	093	Wyoming Basin Province	170	Klamath Mountains	244
Taconic section	095	Middle Rocky Mountains Province	180	California Trough	245
Adirondack Province	100	Northern Rocky Mountains Province	190	California Coast Ranges	246
				Los Angeles Ranges	247
				Lower Californian Province	250

Long-term population trends were determined by applying the percentage change in the BDI between successive years to a Base Year (BY) index. The year 1967 was selected as the BY for all States except Maine, New Hampshire, Rhode Island, and Vermont. The BDI's for this BY were obtained by taking the mean of comparable routes run in 1966 and 1967 (Tables 1, 3). The four excepted States were assigned a 1971 BY index, representing the mean BDI of comparable routes run in both 1970 and 1971. Data from these four States are included, for the first time, in the Eastern Management Unit and the United States weighted means (Table 3).

Long-term trend data have also been determined for each physiographic region. Yearly BDI's for regions were adjusted to a 1969 BY index representing the mean BDI for routes accepted in 1968, 1969, and 1970 (Table 4).

Determination of changes in factors associated with the survey

Annual changes in the mean survey date, temperature at the start of the survey, and the percentage of route listening stations with high disturbance are presented in Table 2. Analysis of these factors was similar to those described for determining year-to-year changes in the BDI (Ruos 1972).

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). In recent years, analysis of data revealed that observed differences of about 8, 9, and 13 percent between years within the Eastern, Central, and Western Management Units, respectively, would be statistically significant at the 5-percent level. 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. Trends were determined by linear regression analysis.

Determination of population distribution

The geographic distribution of dove densities has been determined from a study of BDI values adjusted to a BY for each physiographic region and State. For graphic presentation, the 1972 data have been assigned to one of five density classes. Changes in the adjusted BDI's greater than 10 percent between 1971 and 1972 within physiographic region and State also were determined.

FINDINGS

A substantial increase was indicated in levels of breeding dove populations over a wide area of the United States between 1971 and 1972. Population indices increased by 2 percent in the Eastern, 17 percent in the Central, and 12 percent in the Western Unit. Nevertheless, all management unit indices for the 11-year period, 1962-72, are represented by statistically significant downward population trends. The 1972 management unit values are below the preceding 10-year means in the Eastern and Western Units. For the first time in recent years, the 1972 Central Unit index is above this long-term mean. All unit indices are above their 19-year record low levels of 1971.

Status of the United States dove population

1972 population distribution.--The density distribution of mourning dove populations in the United States is presented by States (Fig. 3) and by physiographic regions (Fig. 4). The most extensive area of high dove density was in the middle States, especially in the eastern Great Plains, Central Lowlands, and in the lower Mississippi River Plain. High densities were also observed in the Upper Atlantic Coastal Plain. A mean of 40 or more doves per route were heard in Indiana, Kansas, Nebraska, and Oklahoma (Table 3).

1971 to 1972 population changes.--The U.S. BDI increased 11.6 percent, from 17.6 doves heard per route in 1971 to 19.6 doves heard per route in 1972 (Table 1). Changes greater than 10 percent in the BDI are illustrated by State (Fig. 5) and by physiographic region (Fig. 6). The 1972 indices were generally higher than those of 1971 in the southern two-thirds of the United States, except for the Atlantic States from Virginia to Georgia, where they were lower. No appreciable change in population level occurred between years in the northern one-third of the Nation. From 1971 to 1972, the combined hunting States' index increased 16.3 percent, whereas the combined nonhunting States' index decreased 1.3 percent.

Analyses of several factors associated with these surveys show that the mean temperature at the start of each survey route run in 1972 was significantly higher than that of 1971: United States, 3.0 F; hunting States, 2.3 F; and nonhunting States, 4.8 F (Table 2). In 1972, the surveys were run an average of 2 days earlier than those of 1971. The percentage of survey stops with audible disturbance great enough to seriously affect the counting of calling doves increased from 8.6 percent in 1971 to 10.4 percent in 1972.

1962 to 1972 long-term population trends.--The 1972 BDI's, adjusted to a BY for the United States and the combined hunting States, recovered from the 1971 record lows. This follows 5 successive years without a significant population increase. In contrast, the adjusted BDI for nonhunting States declined in 1972 to a level approximating the record low established in 1970. The indices for 1972 are below the preceding 10-year means in both the United States and combined nonhunting States, but above this level for the first time in recent years in the hunting States.

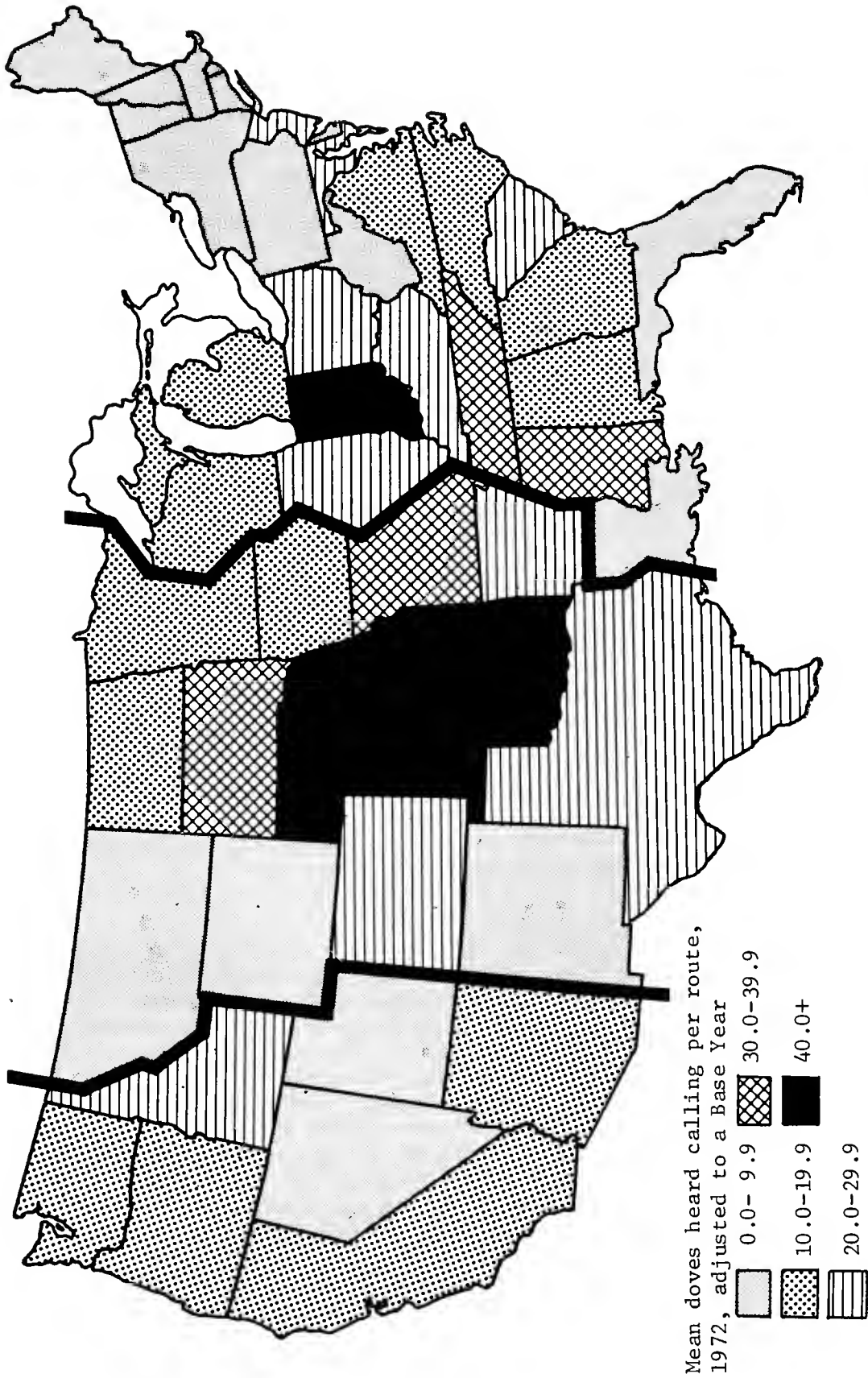


Figure 3.--Relative densities of breeding mourning doves by State, 1972.

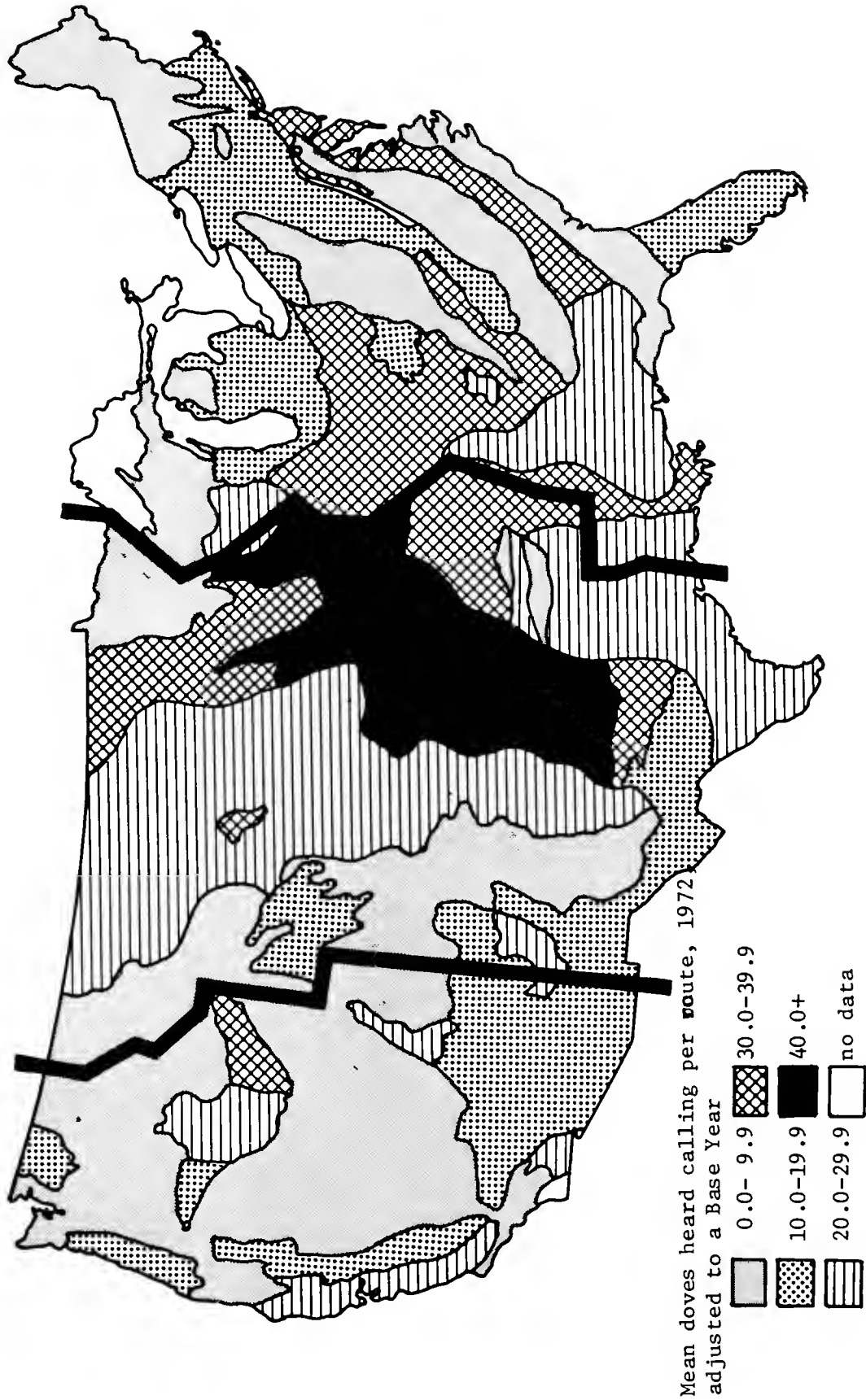


Figure 4.--Relative densities of breeding mourning doves by physiographic region, 1972.

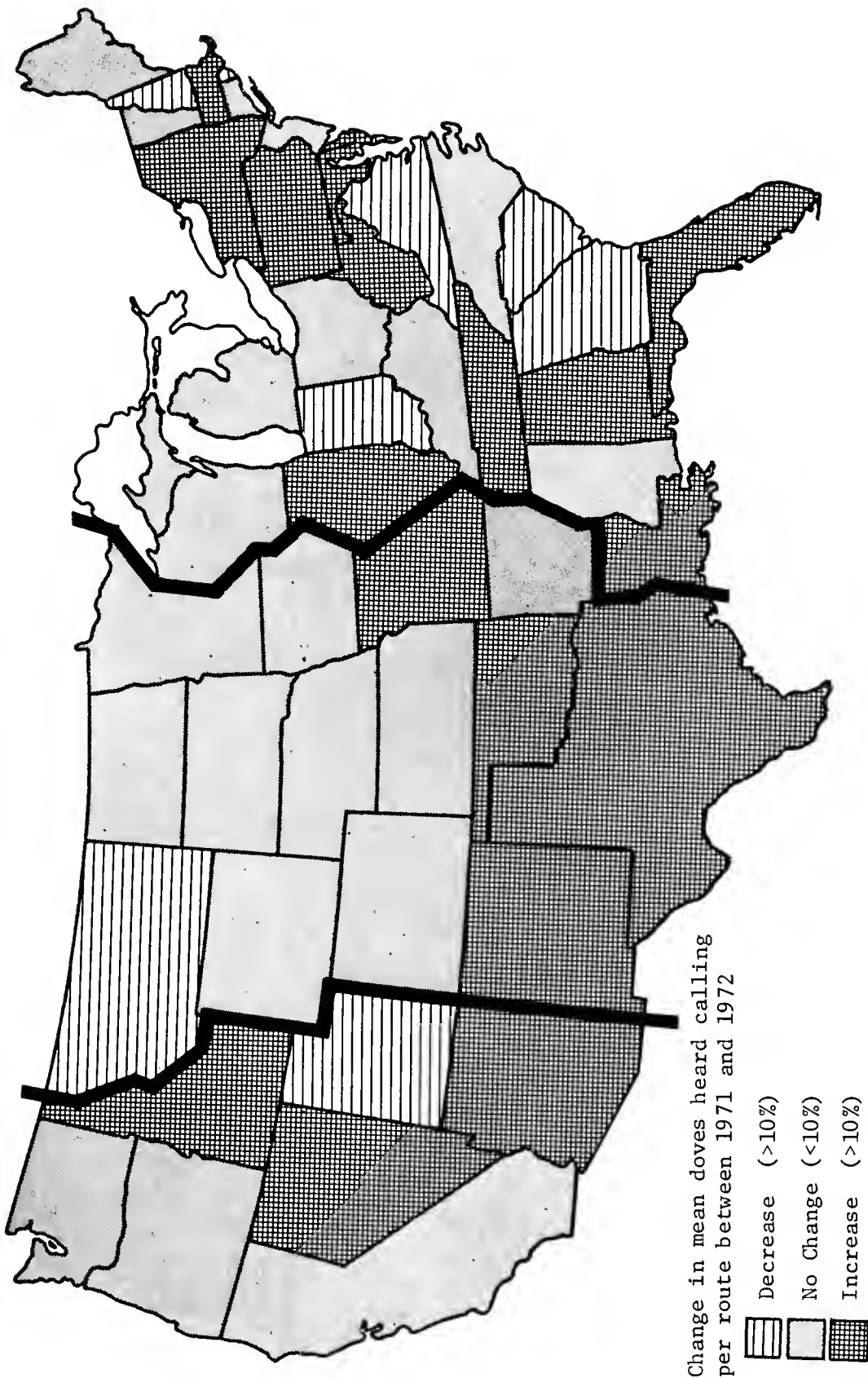


Figure 5.--Changes in densities of breeding mourning doves by State between 1971 and 1972.

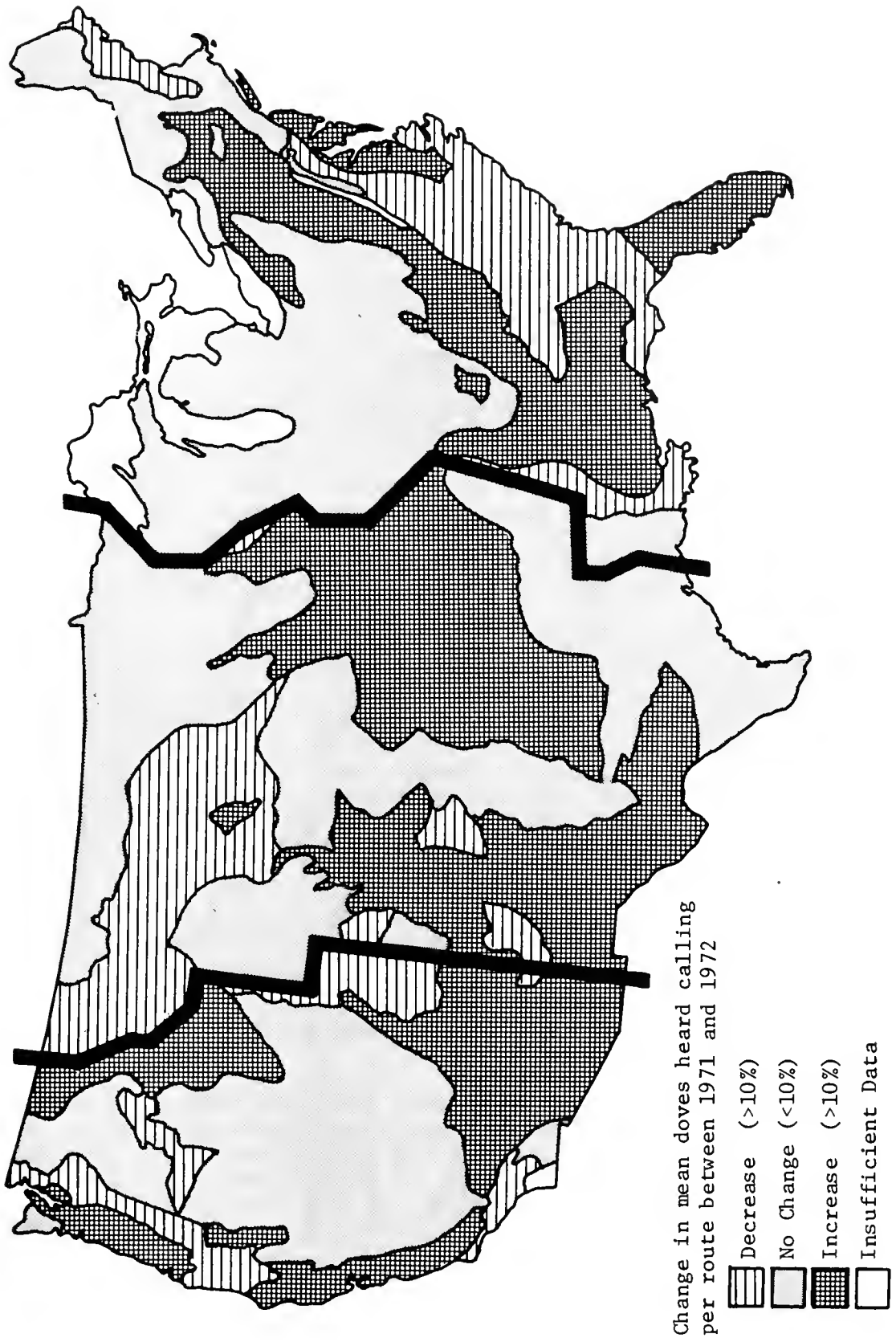


Figure 6.--Changes in densities of breeding mourning doves by physiographic region between 1971 and 1972.

Adjusted BDI's plotted in Figures 7 and 8 reflect the trend in population indices since 1962. Linear regression analyses of these data (Table 3) are shown in Figure 9. The indices declined at an average annual rate of 1.9 percent in the United States, 1.6 percent in the hunting States, and 2.6 percent in the nonhunting States. This study reveals a significant overall decline in nationwide dove breeding populations between 1962 and 1972.

Population trends as determined from linear regression analyses are shown by State (Table 3, Fig. 10) and by physiographic region (Table 4, Fig. 11). From 1962 to 1972, statistically significant downward trends exist throughout parts of the mid-Atlantic, Great Plains, and Pacific States. Trends are significantly upward in eight widely distributed midlatitude States.

Status of the Eastern Management Unit population

1972 population distribution.--The Eastern Unit is represented by 30.1 percent of the land area and 26.6 percent of the total United States dove breeding population. Highest dove population densities in the Unit were in the west-central section, especially in the Central Lowlands, and in portions of the upper Coastal Plain and the Mississippi Alluvial Plain. Densities were generally low in the Appalachian Highlands, northern uplands, and the lower Atlantic Coastal Plain (Fig. 4). States represented by a mean of 30 or more doves heard per route included Indiana, Mississippi, and Tennessee (Table 3, Fig. 3).

1971 to 1972 population changes.--The Eastern Unit BDI increased 1.6 percent from 17.1 doves heard per route in 1971 to 17.4 doves heard per route in 1972 (Table 3). The 1972 population levels were generally higher than those of 1971 in sections of the Appalachian Highlands, Gulf Coastal Plain, and Floridian Coastal Plain. Population indices were lower in much of the Atlantic Coastal Plain, Piedmont Uplands, and Mississippi Alluvial Plain (Figs. 5, 6). From 1971 to 1972, the combined hunting States' index increased 3.0 percent and the combined nonhunting States' index decreased 2.4 percent (Table 3).

Mean temperatures at the start of the surveys were significantly warmer in 1972 than those of 1971 by 1.6 F for the Eastern Unit, 1.1 F for the hunting States, and 3.0 F for the nonhunting States (Table 2). The mean survey date in 1972 was 2 days earlier than that of 1971. No significant change occurred in the percentage of high disturbance recorded per route between the 2 years (Table 2).

1962 to 1972 long-term population trends.--Population indices declined to their lowest levels in 1969. The 1972 data provide evidence of a possible upward population trend during the last several years (Table 3, Fig. 7). The index for the combined hunting States is at the second lowest level on record, up from the record low of 1971. In contrast, the 1972 index for the combined nonhunting States declined from its 1971 record high level (Table 3, Fig. 12). The adjusted Unit BDI for 1972 is 3.3 percent below the preceding 10-year mean (Fig. 7). The combined hunting States' index is 8.9 percent below the 1962-71 average, and the index for the combined nonhunting States is 10.9 percent above this mean (Fig. 12).

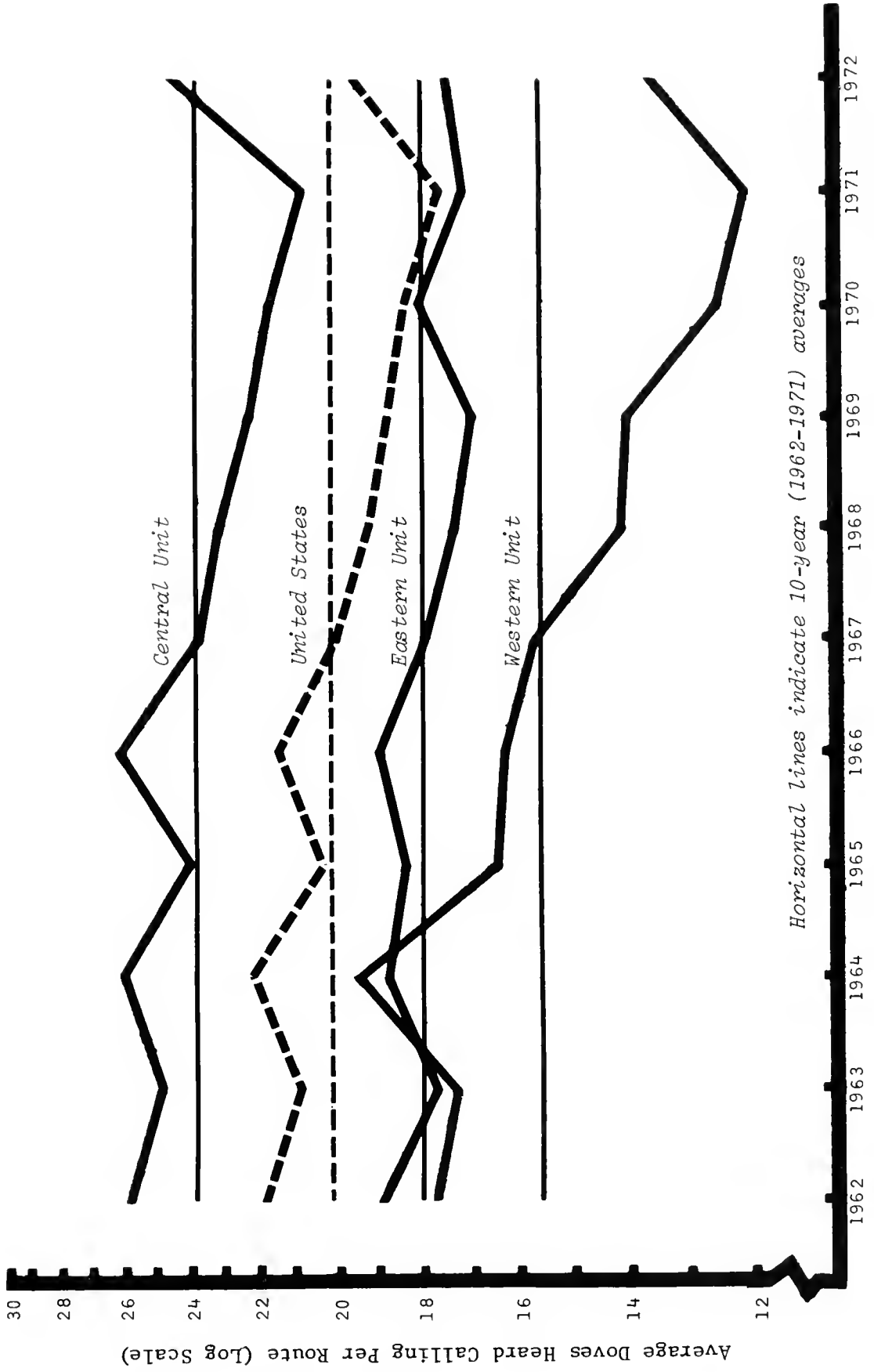


Figure 7.--Population indices of breeding mourning doves by management unit, 1962-72.

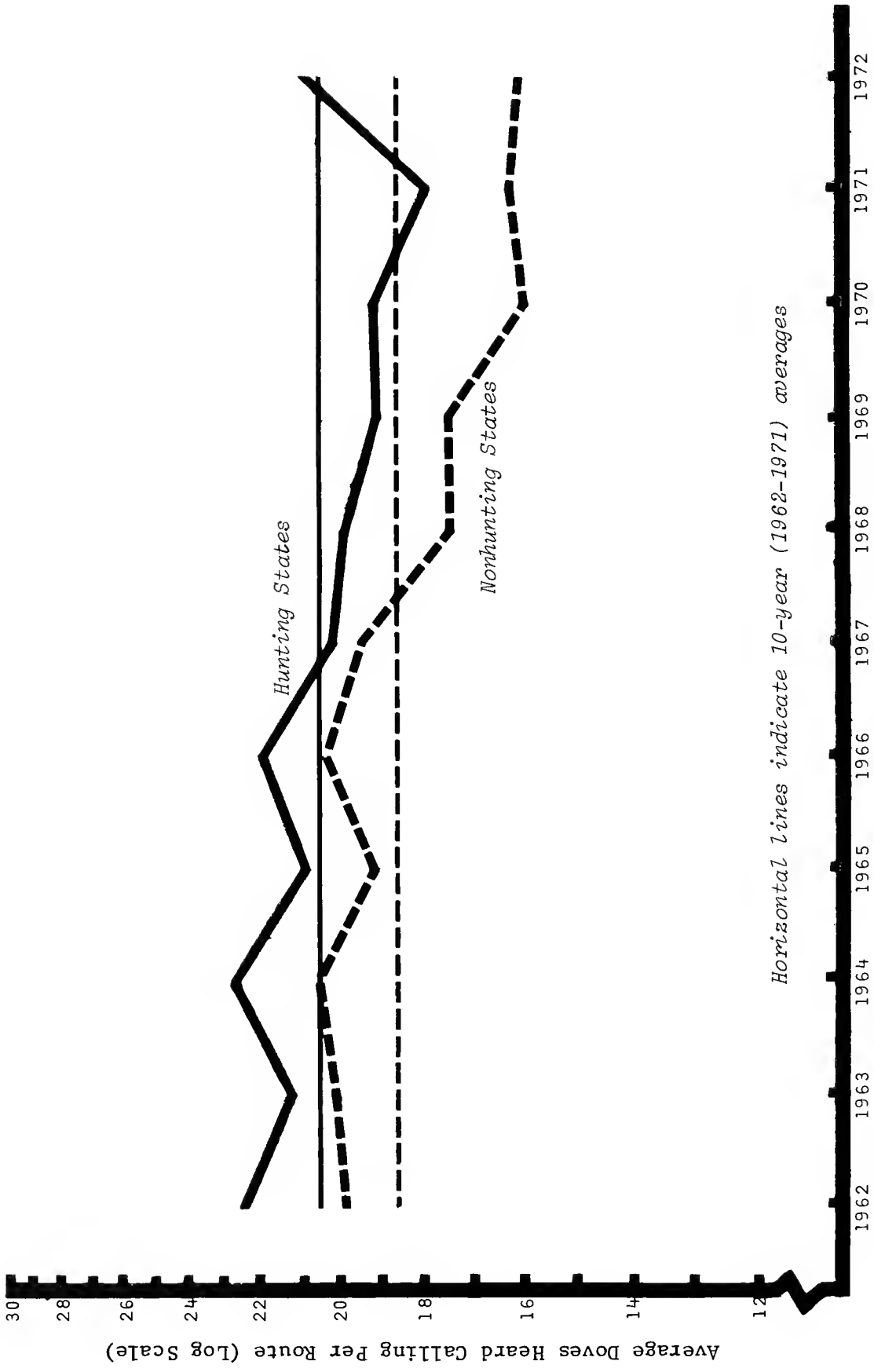


Figure 8.-- Population indices of breeding mourning doves in hunting and nonhunting States, 1962-72.

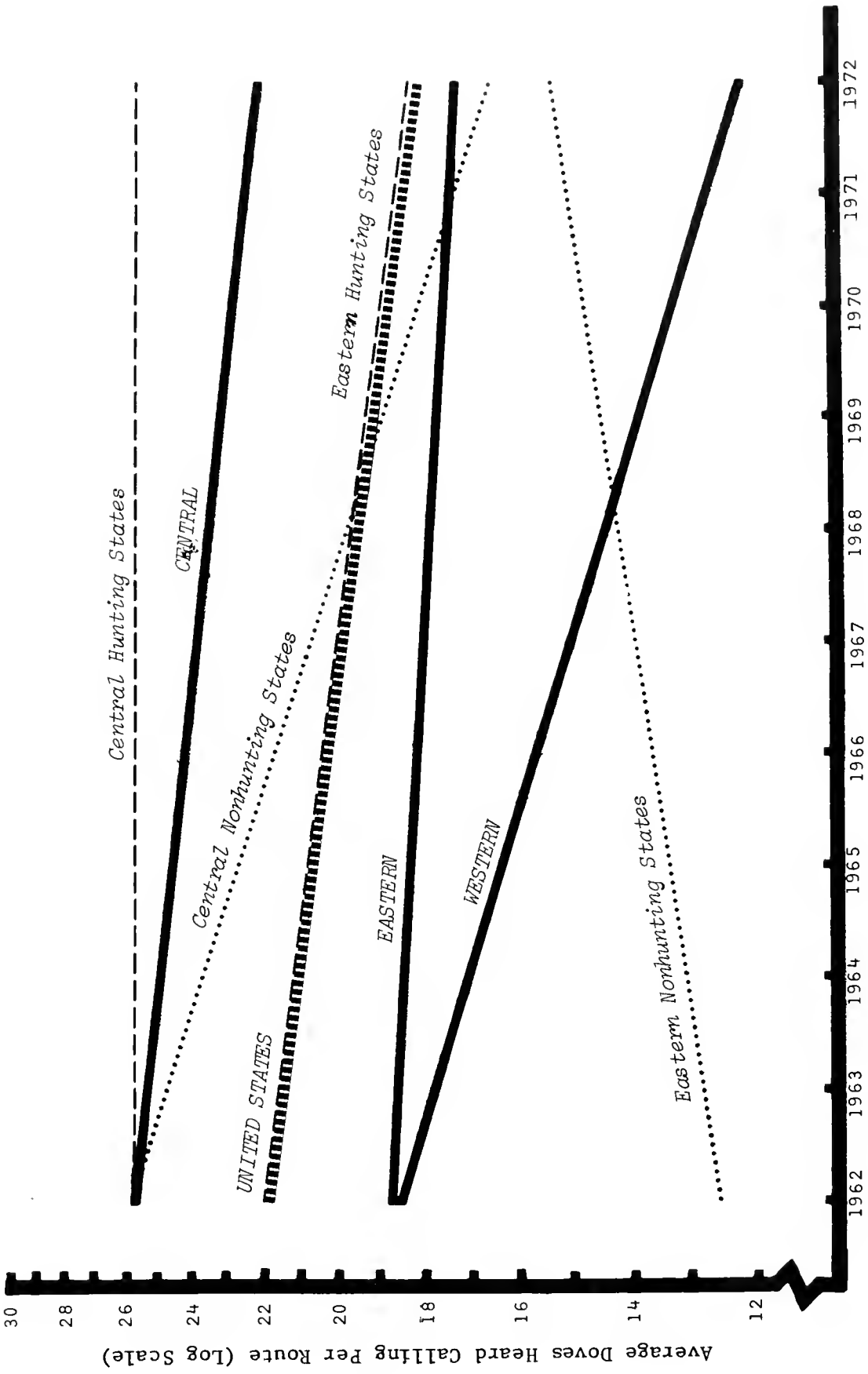


Figure 9.--Linear regression lines of mourning dove call-count data, 1962-72.

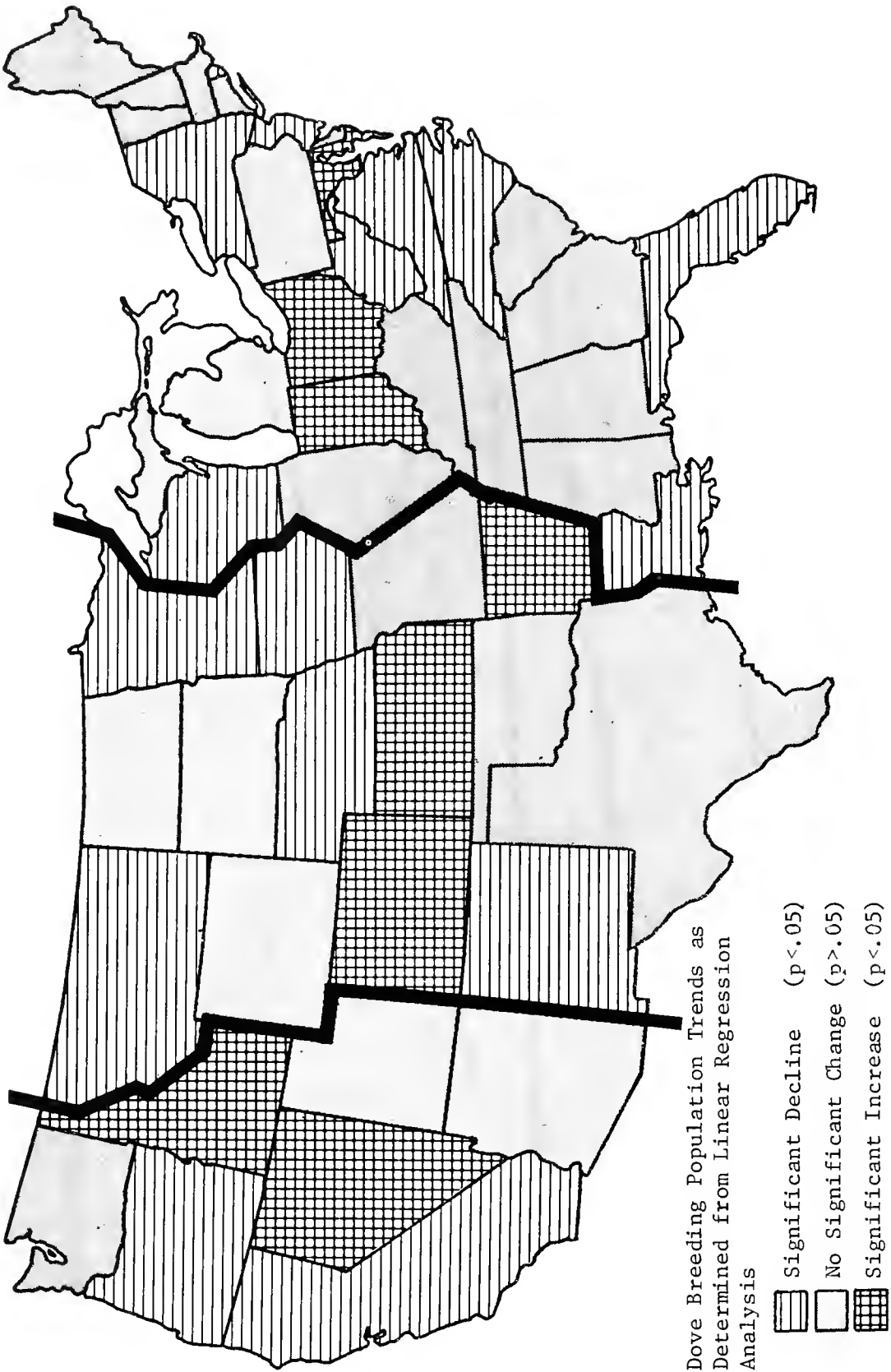


Figure 10.--Trends in mourning dove breeding populations by State, 1962-72.

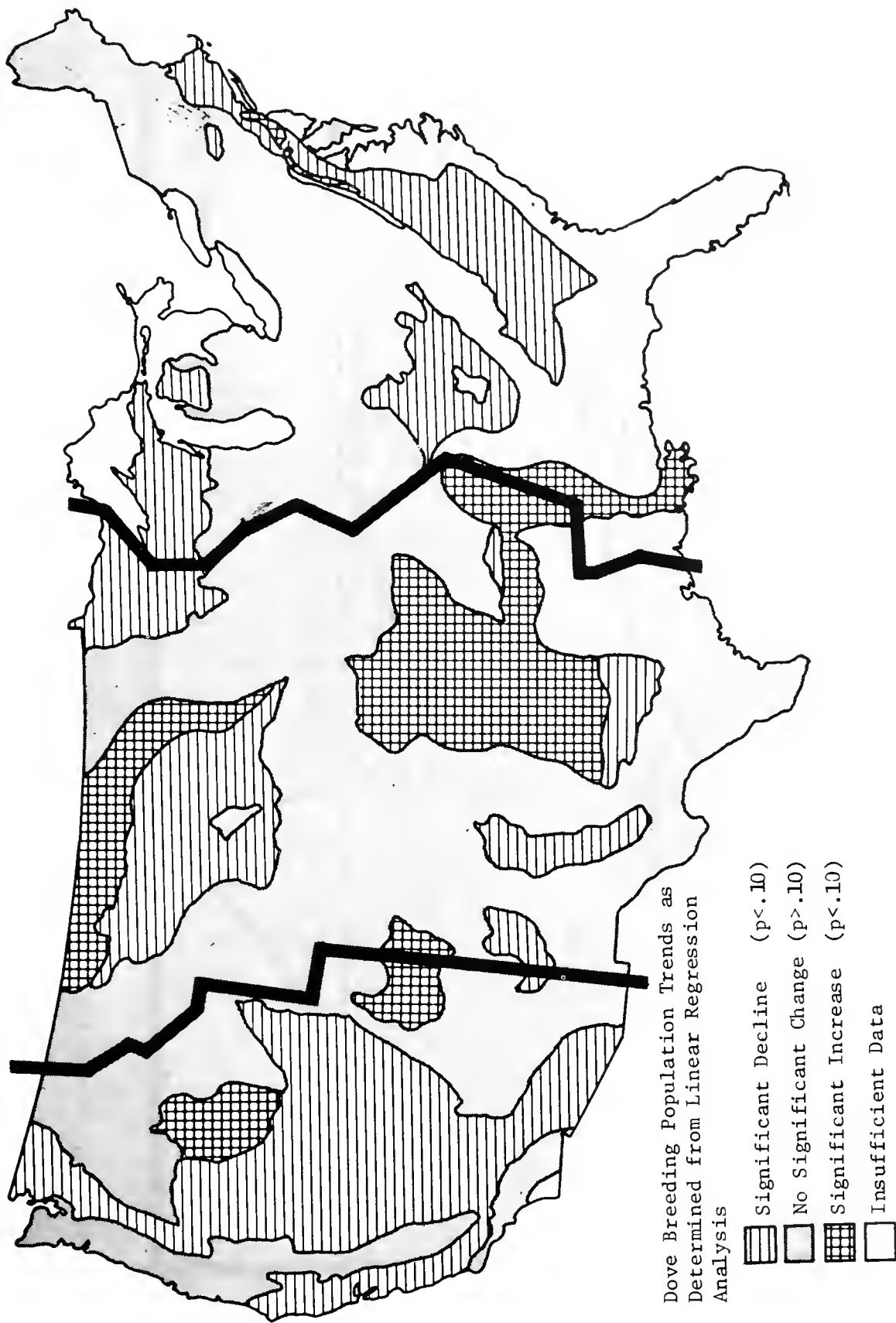


Figure 11.--Trends in mourning dove breeding populations by physiographic region, 1965-72.

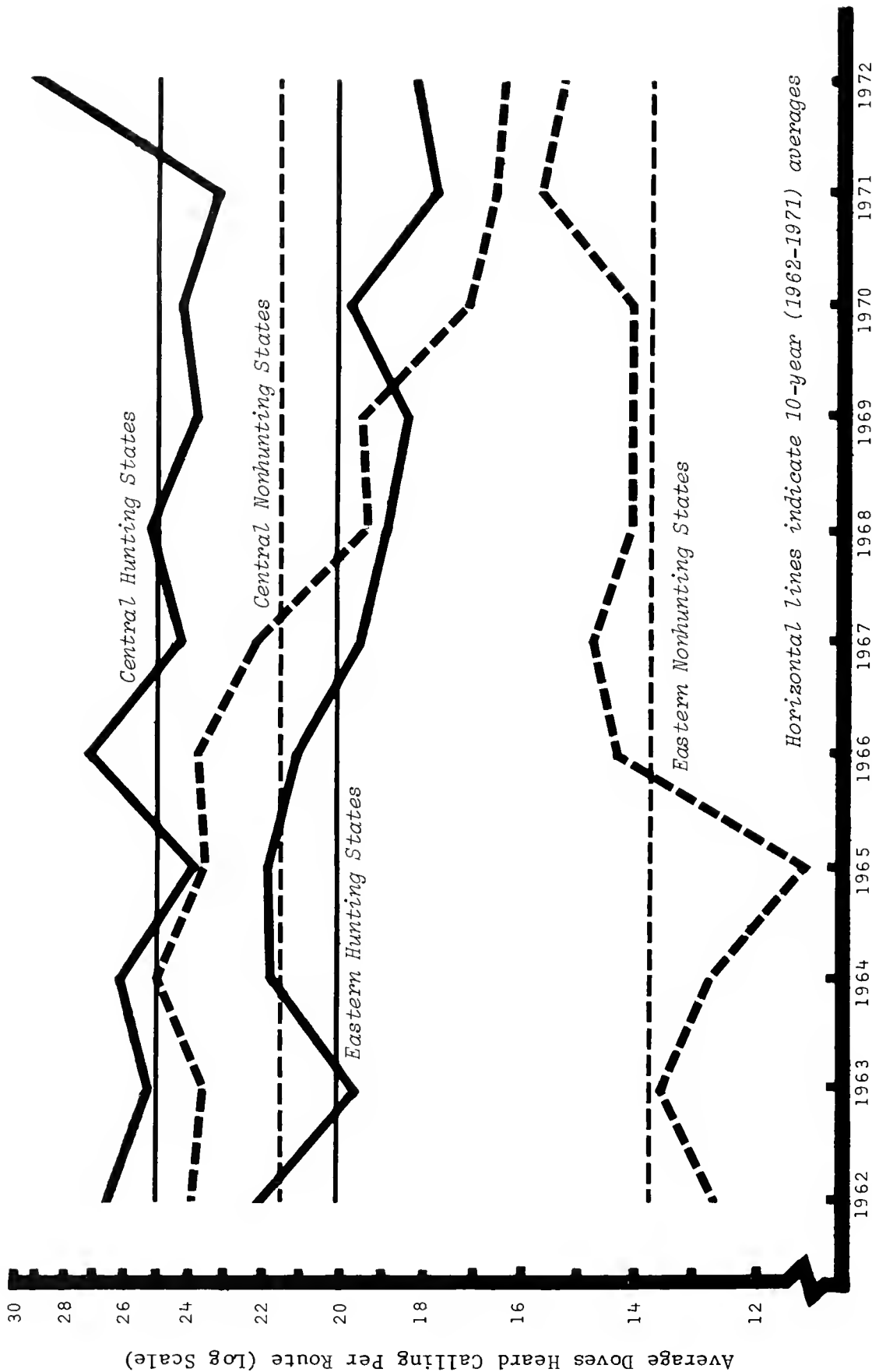


Figure 12.--Population indices for breeding mourning doves in the Eastern and Central Management Unit hunting and nonhunting States, 1962-72.

Regression analysis shows a significant downward trend in the Eastern Unit population between 1962 and 1972; the mean rate of decline was determined to be 0.8 percent per year (Table 3, Fig. 9). During the same period, the combined hunting States declined significantly at an average annual rate of 1.9 percent, whereas the nonhunting States' index increased significantly at 2.0 percent per year. The nonhunting States in the Eastern Unit represent the only grouping of States in the Nation having an upward population trend. Significant upward population trends in the Eastern Unit occurred in Indiana, Maryland, and Ohio; downward trends occurred in Florida, Louisiana, North Carolina, New Jersey, New York, Rhode Island, Virginia, West Virginia, and Wisconsin (Table 3, Fig. 10).

Status of the Central Management Unit population

1972 population distribution.--The Central Unit is represented by 46.0 percent of the land area in the United States and 56.8 percent of the dove breeding population in the Nation. Highest population densities in the Central Management Unit were in the eastern and central sections, especially in the Great Plains and Central Lowlands. Low densities were rather uniformly distributed in the western and southwestern sections of the Unit (Fig. 4). States represented by a mean of 30 or more doves heard per route included Kansas, Missouri, Nebraska, Oklahoma, and South Dakota (Table 3, Fig. 3). Kansas had the highest mean BDI of any State, with an adjusted mean of 61.6 doves heard calling per route.

1971 to 1972 population changes.--The Central Unit BDI increased 16.7 percent from 20.8 doves heard per route in 1971 to 24.3 doves heard per route in 1972 (Table 1). Population levels were substantially higher in 1972 than those of 1971 over much of the southern and central sections of the Unit, and generally lower in the northwestern area (Figs. 5, 6). From 1971 to 1972, the combined hunting States' index increased markedly by 24.7 percent, and the combined nonhunting States' index declined 1.1 percent (Table 1).

In 1972, the mean temperature at the start of the surveys was significantly warmer than that of 1971: Central Unit, 3.5 F; hunting States, 2.2 F; and nonhunting States, 5.8 F (Table 2). The mean survey date in 1972 was 1 day earlier than that of 1971. A slightly greater proportion of the 1971 routes were run under conditions of high disturbance.

1962 to 1972 long-term population trends.--The 1972 Central Unit BDI increased from the 1971 record low level following 5 successive years of population decline (Table 3, Fig. 7). The significant increase in the combined hunting States' index between 1971 and 1972 carried that group's BDI to the highest level for the 11-year period. In contrast, the combined nonhunting States' index is at the lowest level for the same period (Table 3, Fig. 12). Current population levels are above the preceding 10-year means in the Central Unit by 2.1 percent and in the combined hunting States by 16.3 percent (Figs. 7, 12). In 1972, the combined nonhunting States' index is 23.6 percent below the 10-year mean.

Regression analysis shows that a significant downward trend in the dove population index occurred from 1962 to 1972 in the Central Unit. A similar downward trend was observed for the combined nonhunting States. No significant trend in the population indices was shown for the combined hunting States (Table 3, Fig. 9). The annual rates of decline in the adjusted BDI's were determined as follows: Central Unit, -1.6 percent; combined hunting States, -0.1 percent; and combined nonhunting States, -4.4 percent. The annual rate for the nonhunting States represents the greatest rate of decline of any unit or subunit. Significant upward population trends occurred in Arkansas, Colorado, and Kansas; downward trends were evident in Iowa, Minnesota, Montana, Nebraska, and New Mexico (Table 3, Fig. 10).

Status of the Western Management Unit population

1972 population distribution.--The Western Unit is represented by 23.9 percent of the Nation's land area and 16.6 percent of the total dove breeding population in the United States. 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 Unit (Fig. 4). Idaho had the highest adjusted BDI of any Western Unit State in 1972, with 29.4 doves heard calling per route (Table 3, Fig. 3).

1971 to 1972 population changes.--The Western Unit BDI increased 12.5 percent from 12.1 doves heard per route in 1971 to 13.6 doves heard per route in 1972 (Table 1). Population levels were substantially higher throughout the Unit except in the Great Basin and Columbia Plateau (Table 4, Fig. 6). State population indices increased by more than 10 percent from 1971 to 1972 in Arizona, Idaho, and Nevada. Only in Utah did the BDI decrease by more than 10 percent during this period (Table 3, Fig. 5). Doves are hunted in all States of the Western Unit.

The mean temperature at the start of the surveys was 3.5 F warmer in 1972 than that of 1971 (Table 2). No change in the mean survey date occurred between these years. The 1972 survey routes were run under conditions of slightly higher disturbance.

1962 to 1972 long-term population trends.--The 1972 Western Unit BDI increased from the 1971 record low level following 7 successive years without an increase in the population index (Table 3, Fig. 7). The 1972 index is 12.8 percent below the preceding 10-year mean (Fig. 7), and represents the greatest departure of any management unit.

Regression analysis shows a significant downward trend in the dove population index from 1962 to 1972. The BDI declined at an average annual rate of 4.1 percent--the greatest rate of decline of any unit (Table 3, Fig. 9). Between 1962 and 1972, significant upward population trends were determined for Idaho and Nevada. Significant downward trends occurred in California and Oregon during the same period (Table 3, Fig. 10).

Statistical significance of data

1971 to 1972 population changes.--No significant ($p>0.05$) changes occurred in the BDI's of any management unit between 1971 and 1972 (Table 1). The population indices for the combined hunting States in both the Central Unit and the United States did show a significant ($p<0.01$) increase. None of the indices for the other combined hunting States or combined nonhunting States were significantly different between these years. Although not designed to detect population changes within States, the survey showed significant increases in Alabama and Missouri. A significant decrease occurred in Virginia (Table 1).

The analyses of several factors associated with the Call-Count Survey revealed that in each management unit the 1972 survey was run under significantly ($p<0.05$) warmer conditions than those of 1971 (Table 2). The survey was begun slightly earlier in 1972 than in 1971 in both the Eastern and Central Unit. No change in survey dates was evident in the Western Unit. Although the 1972 survey routes were run under conditions of higher disturbance, none of the changes was statistically significant.

A study of the data from physiographic regions within management units revealed significant ($p<0.05$) increases from 1971 to 1972 in the East Gulf Coastal Plain (region 034) and the Nashville Basin (113) of the Eastern Unit (Fig. 1). A significant decrease from 1971 to 1972 occurred in the Piedmont Uplands (041) of the Eastern Unit. No significant changes occurred within physiographic regions in the Central or Western Units.

1962 to 1972 long-term population trends.--Statistical analyses of the 1962-72 data revealed that significant ($p<0.05$) downward trends in BDI's occurred in all management units as well as in the combined hunting States of the Eastern Unit and in the combined nonhunting States of the Central Unit. A significant upward trend was shown for the combined nonhunting States of the Eastern Unit (Table 3).

Analyses of long-term BDI data by State and physiographic region (Tables 3, 4) reveal that eight States had significant ($p<0.05$) upward population trends between 1962 and 1972, while 16 States had downward trends in population (Table 3, Fig. 10). From 1965 to 1972, 9 of 79 physiographic regions had significant ($p<0.10$) upward population trends, whereas 19 regions had downward trends in the index (Table 4, Fig. 11).

ACKNOWLEDGMENTS

This report would not be possible without the cooperation of the State conservation departments and the many individuals who assisted in collecting data. Preparation of this report represents a combined effort; special thanks are extended to Mr. Frederick R. Fiehrer for computer programming support and Mrs. Kathryn Munson for assisting with the logistical aspects of this inter-agency, cooperative nationwide survey.

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TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDICES ON
20-STOP CALL-COUNT SURVEY ROUTES, 1971-72,

EASTERN MANAGEMENT UNIT

		MEAN NUMBER OF DOVES HEARD PER ROUTE 1/ ADJUSTED WITHIN YEAR ADJUSTED TO BASE-YEAR PERCENT				
STATES	ROUTES	1971	1972	1971	1972	PERCENT CHANGE 2/
HUNTING STATES						
ALA.	27	16.2	19.5	16.5	19.8	20.2***
DEL.	1	5.0	6.0	3.8	4.6	20.0
FLA.	22	8.2	9.6	5.9	7.0	17.9
GA.	17	15.9	13.4	12.6	10.6	-15.6
ILL.	15	22.3	24.9	24.8	27.7	11.6
KY.	18	26.2	26.5	27.7	28.0	1.2
LA.	17	6.0	7.0	7.2	8.4	16.3
MD.	7	18.3	25.5	19.1	26.6	39.1*
MISS.	22	28.1	28.7	34.2	35.0	2.3
N.C.	20	19.4	18.2	12.5	11.7	-6.3
PA.	15	6.2	7.3	5.9	7.0	18.1
R.I.	2	13.0	9.5	2.6	1.9	-26.9
S.C.	16	28.4	23.2	31.2	25.5	-18.3
TENN.	18	18.5	22.1	32.3	38.6	19.5*
VA.	9	26.7	15.9	18.8	11.2	-40.3**
W. VA.	7	6.0	9.4	5.7	8.9	56.5
SUBTOTAL 233				17.9	18.4	3.0
NONHUNTING STATES						
CONN.	2	6.0	5.5	0.0	0.0	-8.3
IND.	11	40.3	34.3	49.0	41.6	-15.0
MASS.	3	4.8	6.3	4.7	6.1	29.5
MAINE	4	0.0	0.0	0.0	0.0	0.0
MICH.	14	10.8	11.4	14.6	15.4	5.5
N.H.	3	4.4	3.2	2.9	2.1	-27.8
N.J.	3	25.1	27.1	23.6	25.5	7.9
N.Y.	15	7.3	9.6	4.9	6.4	31.5
OHIO	11	34.0	35.7	26.2	27.5	5.1
VT.	2	0.0	0.0	0.0	0.0	0.0
WISC.	20	14.3	13.7	11.7	11.2	-4.2
SUBTOTAL 98				15.7	15.3	-2.4
TOTAL 321				17.1	17.4	1.6

TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDICES ON
20-STOP CALL-COUNT SURVEY ROUTES, 1971-72--CONTINUED.

CENTRAL MANAGEMENT UNIT

STATES	ROUTES	MEAN NUMBER OF DOVES HEARD PER ROUTE 1/ ADJUSTED WITHIN YEAR ADJUSTED TO BASE-YEAR PERCENT CHANGE 2/				
		1971	1972	1971	1972	
HUNTING STATES						
ARK.	11	20.7	20.5	24.3	24.1	-1.0
COLO.	10	17.5	19.0	18.8	20.5	8.9
KANS.	20	60.1	63.1	58.7	61.6	5.0
MO.	16	31.2	42.3	29.5	39.9	35.4**
N. MEX.	17	8.8	11.1	6.8	8.6	26.0
OKLA.	5	4.5	13.4	14.6	43.6	199.0*
S. DAK.	19	36.0	37.1	36.5	37.7	3.2
TEX.	43	18.8	24.1	18.7	24.0	28.4
SUBTOTAL	141			23.4	29.2	24.7***
NONHUNTING STATES						
IOWA	9	33.3	31.3	20.8	19.6	-5.9
MINN.	13	15.1	15.2	13.0	13.1	1.0
MONT.	11	22.2	16.2	6.5	4.7	-26.9
N. DAK.	18	23.2	24.3	17.1	17.9	4.8
NEBR.	16	39.6	41.9	45.3	47.8	5.6
WYO.	6	3.3	3.3	9.5	9.5	0.3
SUBTOTAL	73			16.7	16.5	-1.1
TOTAL	214			20.8	24.3	16.7*

TABLE 1.--CHANGES IN MOURNING DOVE BREEDING DENSITY INDICES ON
20-STOP CALL-COUNT SURVEY ROUTES, 1971-72--CONTINUED.

WESTERN MANAGEMENT UNIT

		MEAN NUMBER OF DOVES HEARD PER ROUTE 1/ ADJUSTED WITHIN YEAR ADJUSTED TO BASE-YEAR PERCENT				
STATES	ROUTES	1971	1972	1971	1972	CHANGE 2/
HUNTING STATES						
ARIZ.	33	12.4	16.6	13.1	17.5	33.8*
CALIF.	59	14.3	15.2	11.1	11.8	5.9
IDAHO	16	12.0	15.5	22.7	29.4	29.4
NEV.	16	2.9	5.7	3.3	6.6	100.0
OREG.	21	8.7	8.2	11.9	11.2	-5.5
UTAH	14	22.6	15.0	13.8	9.2	-33.4
WASH.	20	8.9	8.7	12.4	12.0	-2.9
TOTAL	179			12.1	13.6	12.5

UNITED STATES SUMMARY

		MEAN NUMBER OF DOVES HEARD PER ROUTE 1/ ADJUSTED WITHIN YEAR ADJUSTED TO BASE-YEAR PERCENT				
STATES	ROUTES	1971	1972	1971	1972	CHANGE 2/
HUNT	553			18.1	21.0	16.3***
NONHUNT	161			16.3	16.1	-1.3
TOTAL	714			17.6	19.6	11.6*

1/ INDEXES OBTAINED FROM COMPARABLE, RANDOMIZED ROUTE DATA ADJUSTED FOR VARIATION IN THE LAND AREA OF EACH PHYSIOGRAPHIC REGION AREA PRESENTED WITHIN YEAR. STATE DATA ADJUSTED TO A BASE-YEAR ARE SHOWN HERE AND IN TABLE 3. UNIT AND SUBUNIT MEANS ARE DERIVED FROM STATE DATA ADJUSTED TO A BASE-YEAR AND WEIGHTED BY TOTAL STATE LAND AREA VALUES.

2/ CALCULATIONS PERFORMED USING THREE SIGNIFICANT POSITIONS. THE NUMBER OF ASTERISKS REPRESENT THE STATISTICAL SIGNIFICANCE LEVEL : * 10 PERCENT; ** 5 PERCENT; *** 1 PERCENT. SIGNIFICANCE LEVELS FOR STATE AND UNIT CHANGES ARE DETERMINED FROM ANALYSES OF DATA PRESENTED WITHIN YEAR.

TABLE 2.--FACTORS ASSOCIATED WITH THE MOURNING DOVE CALL-COUNT SURVEY 1971-72.

EASTERN MANAGEMENT UNIT

STATES	DATE OF SURVEY 17		TEMPERATURE AT START 17		HIGH DISTURBANCE (%) 1,27							
	ROUIES	1971	1972	CHANGE	ROUIES	1971	1972	CHANGE				
HUNTING STATES												
ALA.	27	MAY 26	MAY 24	-2*	27	57.4	61.1	3.6**	25	12.5	12.1	-0.3
DEL.	1	JUNE 6	MAY 25	-12	1	70.0	52.0	-18.0	1	25.0	5.0	-20.0
FLA.	19	MAY 29	MAY 26	-3	18	66.2	67.0	0.8	19	6.8	7.4	0.6
GA.	17	MAY 25	MAY 27	2	17	64.3	50.1	-4.2	15	6.6	15.4	8.9
ILL.	15	MAY 26	MAY 27	1	15	50.6	61.7	11.1***	12	10.8	19.2	8.3*
KY.	18	MAY 27	MAY 26	-1	17	54.2	57.3	3.2	18	7.1	4.7	-2.4
LA.	16	MAY 24	MAY 25	1	16	65.5	65.5	0.0	16	9.9	8.6	-1.4
MD.	7	MAY 30	MAY 29	-1	7	59.7	54.6	-4.1	6	6.8	8.6	1.8
MISS.	22	MAY 23	MAY 22	-1	22	62.1	60.0	-2.1*	22	7.9	15.5	7.6***
N.C.	20	MAY 26	MAY 29	3	20	62.7	61.2	-1.4	17	9.4	7.3	-2.1
PA.	14	JUNE 2	MAY 27	-6**	14	53.2	52.7	-0.4	14	12.0	18.6	6.7
R.I.	2	MAY 24	MAY 28	4	2	52.5	41.5	-11.0***	2	0.0	7.5	7.5**
S.C.	16	MAY 25	MAY 26	1	16	60.9	61.7	0.8	15	12.5	9.4	-3.1
TENN.	18	MAY 24	MAY 23	-1	18	55.8	59.7	3.9***	12	14.6	19.8	5.2
VA.	9	MAY 30	MAY 28	-2*	8	57.5	53.3	-4.2	8	7.1	16.2	9.1
W. VA.	6	MAY 29	MAY 29	0	6	52.0	56.8	4.7	6	4.7	20.0	15.3
SUBTOTAL	227	MAY 27	MAY 26	-1	224	59.1	60.2	1.1*	208	9.4	13.3	3.9
NONHUNTING STATES												
CONN.	2	MAY 25	MAY 30	5***	2	49.0	46.0	-3.0	2	10.0	10.0	0.0
IND.	11	MAY 31	MAY 27	-4*	11	54.2	56.6	2.3	11	9.3	8.9	-0.4
MASS.	3	JUNE 1	MAY 29	-3	3	53.4	50.1	-3.4	1	25.0	10.0	-15.0
MAINE	0	MAY 15	MAY 15	0	0	0.0	0.0	0.0	0	0.0	0.0	0.0
MICH.	12	JUNE 3	MAY 24	-10***	12	48.8	51.6	2.8	11	12.4	10.2	-2.2
N.H.	2	MAY 27	MAY 25	-2	2	46.0	39.0	-7.0	1	0.0	0.0	0.0
N.J.	3	MAY 23	MAY 27	4	3	49.5	50.1	0.6	3	36.2	29.4	-6.8
N.Y.	9	MAY 30	MAY 26	-4*	9	45.8	50.4	4.6	9	4.1	5.6	1.5
OHIO	11	JUNE 1	MAY 28	-4	11	56.2	55.9	-0.3	11	11.9	15.1	3.2
VT.	0	MAY 15	MAY 15	0	0	0.0	0.0	0.0	0	0.0	0.0	0.0
WISC.	19	JUNE 1	MAY 30	-2*	19	44.0	51.2	7.2*	15	8.9	10.2	1.3
SUBTOTAL	72	JUNE 1	MAY 27	-5***	72	49.5	52.4	3.0*	64	10.6	10.5	-0.1
TOTAL	299	MAY 28	MAY 26	-2***	296	56.2	57.9	1.6**	272	9.8	12.4	2.7

TABLE 2.--FACTORS ASSOCIATED WITH THE MOURNING DOVE CALL-COUNT SURVEY 1971-72 --CONTINUED.

CENTRAL MANAGEMENT UNIT

STATES	DATE OF SURVEY 1971		DATE OF SURVEY 1972		CHANGE	TEMPERATURE AT STABI. 17		HIGH DISTURBANCE		HIGH DISTURBANCE 1971-1972	CHANGE		
	ROUTES	1971	1972	CHANGE		ROUTES	1971	1972	CHANGE				
HUNTING STATES													
ARK.	11	MAY 26	MAY 27	1		11	59.5	62.2	2.7	10	0.8	6.4	5.6
COLO.	10	MAY 30	MAY 25	-5*		10	42.6	40.7	-1.9	7	5.0	2.6	-2.4
KANS.	20	MAY 29	MAY 27	-2		20	54.1	53.9	-0.2	17	4.4	12.0	7.6***
MO.	16	MAY 26	MAY 24	-2		16	49.6	61.2	11.6***	16	11.2	11.1	-0.1
N. MEX.	16	MAY 27	MAY 23	-4*		16	48.9	49.0	0.1	14	10.7	11.5	0.8
OKLA.	5	MAY 30	MAY 25	-5		5	63.4	67.3	3.9	4	15.9	32.0	16.1
S. DAK.	19	MAY 28	MAY 26	-2		19	44.5	52.4	7.9**	17	5.0	9.8	4.9
TEX.	43	MAY 23	MAY 23	0		43	63.3	63.9	0.5	24	12.2	14.8	2.6
SUBTOTAL	140	MAY 27	MAY 24	-3***		140	54.7	56.9	2.2**	109	9.1	12.5	3.4
NONHUNTING STATES													
IOWA	9	MAY 28	MAY 29	1		9	46.2	57.0	10.8**	8	8.4	5.5	-2.9
MINN.	9	MAY 27	MAY 27	0		9	42.6	53.3	10.6	9	9.7	7.9	-1.8
MONT.	8	MAY 30	MAY 29	-1		8	45.8	45.0	-0.8	7	7.8	10.7	2.9
N. DAK.	18	MAY 26	MAY 27	1		17	44.2	51.2	7.0***	15	8.7	5.1	-3.5
NEBR.	16	MAY 30	MAY 25	-5		16	48.3	56.7	8.4**	13	8.2	7.9	-0.3
WYO.	4	MAY 31	MAY 22	-2		4	41.2	46.5	5.3	3	11.7	16.7	5.0
SUBTOTAL	64	MAY 29	MAY 28	-1		63	45.1	50.9	5.8***	55	8.7	8.7	-0.0
TOTAL	204	MAY 27	MAY 26	-1***		203	51.2	54.7	3.5***	164	9.0	11.1	2.1

TABLE 2.--FACTORS ASSOCIATED WITH THE MOURNING DOVE CALL-COUNT SURVEY 1971-72 --CONTINUED.

WESTERN MANAGEMENT UNIT

STATES	DATE OF SURVEY 1/		TEMPERATURE AT STARI 1/		HIGH DISTURBANCE (%) 1.2/						
	ROUIES 1971	1972	CHANGE	ROUIES 1971	1972	CHANGE					
ARIZ.	31	MAY 27	0	29	48.3	54.4	6.1***	25	5.5	7.1	1.6
CALIF.	46	MAY 28	1	45	51.3	54.9	3.5**	44	12.0	13.2	1.2
IDAHO	15	MAY 29	0	15	46.6	47.6	1.0	15	9.7	13.4	3.7
NEV.	14	MAY 30	5***	12	43.7	48.8	5.2	11	0.0	0.0	0.0
OREG.	18	MAY 23	2	18	41.1	45.7	4.6*	15	3.6	3.6	-0.0
UTAH	13	MAY 30	4***	13	43.6	42.8	-0.9	11	2.4	1.1	-1.2
WASH.	14	MAY 25	0	14	48.0	51.4	3.4	14	10.6	5.4	-5.2
TOTAL	151	MAY 27	0	146	46.6	50.1	3.5***	135	6.5	6.9	0.4

HUNTING STATES

UNITED STATES SUMMARY

STATES	DATE OF SURVEY 1/		TEMPERATURE AT STARI 1/		HIGH DISTURBANCE (%) 1.2/						
	ROUIES 1971	1972	CHANGE	ROUIES 1971	1972	CHANGE					
HUNT	518	MAY 27	1***	510	53.2	55.5	2.3***	452	8.3	10.8	2.5*
NONHUNT	136	MAY 30	2**	135	46.6	51.4	4.8***	119	9.4	9.3	-0.0
TOTAL	654	MAY 28	2***	645	51.5	54.5	3.0***	571	8.6	10.4	1.8

1/ DATA FROM COMPARABLE RANDOMIZED ROUTES ADJUSTED FOR VARIATION IN LAND AREA OF EACH PHYSIOGRAPHIC REGION, CALCULATIONS PERFORMED USING 3 SIGNIFICANT POSITIONS. CHANGE EQUALS THE ARITHMETIC DIFFERENCE. THE NUMBER OF ASTERISKS REPRESENT THE STATISTICAL SIGNIFICANCE LEVEL OF CHANGE: * 10 PERCENT; ** 5 PERCENT; *** 1 PERCENT.

2/ PERCENT OF STOPS (LISTENING STATIONS) WITH THE LEVEL OF DISTURBANCE GREAT ENOUGH TO SERIOUSLY LIMIT AN OBSERVER'S ABILITY TO HEAR CALLING DOVES. 20-STOP SURVEY ROUTE.

TABLE 3.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDICES BY STATE, 1962-72.

EASTERN MANAGEMENT UNIT

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE Doves HEARD CALLING PER ROUTE 1.27										LINEAR REGRESSION, 1962-72			
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL ANNUAL	PERCENT CHANGE STAT. SIGN.	
HUNTING STATES															
ALA.	33.32	19.8	16.3	21.1	20.5	20.5	19.8	16.9	20.6	18.1	16.5	19.8	-5.4	-0.6	N.S.
DEL.	1.29	5.6	5.1	4.4	5.1	3.8	7.5	5.3	5.3	11.4	3.8	4.6	22.9	2.1	N.S.
FLA.	35.82	11.4	9.8	11.2	10.5	9.4	9.1	7.3	8.0	8.8	5.9	7.0	-41.7	-5.3	P .01
GA.	37.82	16.8	14.4	22.5	18.5	13.1	15.4	14.2	15.5	18.9	12.6	10.6	-27.0	-3.1	N.S.
ILL.	35.09	26.3	26.9	24.3	23.5	27.0	27.9	27.4	22.9	30.8	24.8	27.7	6.2	0.6	N.S.
KY.	26.08	28.6	27.0	30.4	32.5	35.3	29.9	27.4	27.4	28.0	27.7	28.0	-7.6	-0.8	N.S.
LA.	31.14	14.2	16.6	13.6	11.6	7.7	8.9	7.6	7.4	7.1	7.2	8.4	-60.0	-8.7	P .01
MD.	6.55	15.8	16.1	16.1	16.0	15.2	20.1	17.7	16.9	20.2	19.1	26.6	52.1	4.3	P .01
MISS.	30.63	35.4	30.5	35.1	36.8	33.6	27.7	26.4	28.5	30.5	34.2	35.0	-6.8	-0.7	N.S.
N.C.	22.51	19.0	21.0	21.9	24.8	26.4	21.4	22.7	17.6	18.8	12.5	11.7	-36.7	-4.5	P .05
PA.	29.01	8.2	5.6	7.2	7.4	8.7	11.9	7.9	8.6	6.2	5.9	7.0	-7.1	-0.7	N.S.
R.I.	0.67	3.5	3.5	5.6	3.8	4.4	5.6	2.8	2.6	0.9	2.6	1.9	-57.1	-8.1	P .05
S.C.	19.99	23.0	23.0	24.1	35.3	34.4	34.2	33.5	36.1	29.8	31.2	25.5	21.1	1.9	N.S.
TENN.	27.07	34.8	29.2	28.1	30.4	30.4	22.3	24.2	23.2	36.0	32.3	38.6	11.0	1.1	N.S.
VA.	26.05	24.8	25.2	29.0	24.0	29.1	23.6	31.8	24.4	21.7	18.8	11.2	-35.0	-4.2	P .05
W. VA.	15.41	44.0	18.5	23.4	22.6	9.8	5.0	5.0	5.7	6.6	5.7	8.9	-100.0	-30.7	P .01
SUBTOTAL	378.45	22.2	19.8	21.9	22.0	21.2	19.6	19.0	18.6	20.0	17.9	18.4	-17.1	-1.9	P .01
NONHUNTING STATES															
CONN.	3.23	3.5	3.0	2.4	1.9	2.9	4.5	4.9	0.7	5.5	6.0	5.5	121.9	8.3	P .10
IND.	23.36	23.4	26.8	27.7	20.2	37.2	38.6	41.5	37.9	38.7	49.0	41.6	98.5	7.1	P .01
MAINE	19.85	2.5	1.5	0.0	0.5	0.0	0.0	1.0	1.4	0.0	0.0	0.0	-100.0	-48.9	P .10
MASS.	5.31	9.0	5.2	6.7	7.7	11.0	14.5	4.9	1.5	5.3	4.7	6.1	-40.7	-5.1	N.S.
MICH.	37.18	11.8	17.4	13.2	8.0	12.3	11.9	9.1	11.7	10.4	14.6	15.4	1.9	0.2	N.S.
N.H.	5.80	0.6	0.6	1.1	1.9	1.4	0.9	0.8	0.7	0.8	2.9	2.1	173.0	10.6	N.S.
N.J.	4.91	28.8	29.5	30.4	25.7	24.2	20.1	19.5	17.0	21.3	23.6	25.5	-28.8	-3.3	P .05
N.Y.	30.49	8.3	7.8	7.0	7.1	7.9	7.8	6.9	5.9	5.4	4.9	6.4	-32.5	-3.9	P .01
OHIO	26.42	21.4	17.5	16.8	19.1	26.3	25.5	27.0	30.6	34.0	26.2	27.5	69.7	5.4	P .01
VT.	5.95	0.1	0.1	0.1	0.1	0.2	0.2	0.1	0.1	0.3	0.0	0.0	-26.7	-3.1	N.S.
WISC.	36.07	12.7	14.1	15.2	16.1	11.1	13.5	11.5	10.0	8.6	11.7	11.2	-30.4	-3.6	P .05
SUBTOTAL	198.57	12.7	13.6	12.8	11.4	14.4	14.8	14.1	14.1	14.1	15.7	15.3	22.1	2.0	P .01
TOTAL	577.02	18.9	17.7	18.8	18.4	18.9	17.9	17.3	17.0	18.0	17.1	17.4	-8.1	-0.8	P .05

TABLE 3.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDICES BY STATE, 1962-72--CONTINUED.

CENTRAL MANAGEMENT UNIT															
LAND AREA	ADJUSTED AVERAGE Doves HEARD CALLING PER ROUTE 1.2/											LINEAR REGRESSION, 1962-72			
	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	PERCENT CHANGE	STAT. SIGN.		
STATE	WEIGHT	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL ANNUAL	SIGN.	
HUNTING STATES															
ARK.	34.37	10.5	16.0	16.8	14.8	16.5	20.7	20.0	22.3	22.9	24.3	24.1	98.6	7.1	P .01
COLO.	67.18	13.8	11.0	13.1	11.5	14.8	16.1	13.7	19.6	20.5	18.8	20.5	83.3	6.3	P .01
KANS.	52.43	56.2	49.8	53.1	48.2	51.8	60.3	59.0	65.4	60.5	58.7	61.6	22.5	2.1	P .05
MO.	45.10	42.7	36.7	40.2	36.0	39.3	36.6	39.9	25.4	31.4	29.5	39.9	-20.3	-2.2	N.S.
N. MEX.	77.98	19.2	18.1	20.6	19.3	28.4	8.5	12.7	8.8	8.3	6.8	8.6	-70.1	-11.3	P .01
OKLA.	44.40	36.4	39.9	37.7	34.6	29.3	37.9	39.8	30.2	26.4	14.6	43.6	-23.2	-2.6	N.S.
S. DAK.	49.20	37.4	40.6	39.0	35.1	45.3	28.2	31.2	28.7	30.5	36.5	37.7	-15.9	-1.7	N.S.
TEX.	170.03	19.4	17.7	17.4	16.4	17.8	16.8	17.3	16.5	18.8	18.7	24.0	16.7	1.6	N.S.
SUBTOTAL	540.69	26.7	25.4	26.3	24.0	27.4	24.4	25.4	23.9	24.5	23.4	29.2	-1.1	-0.1	N.S.
NONHUNTING STATES															
IOWA	36.15	37.1	33.5	34.9	29.0	33.2	34.1	30.6	25.8	17.1	20.8	19.6	-48.2	-6.4	P .01
MINN.	54.09	15.9	16.2	20.5	18.6	18.7	16.7	18.2	10.7	8.7	13.0	13.1	-37.5	-4.6	P .05
MONT.	94.47	10.4	15.1	15.4	15.7	17.1	18.7	5.7	6.6	5.0	6.5	4.7	-67.7	-10.6	P .05
NEBR.	49.69	69.9	58.7	66.1	55.6	48.5	40.0	47.9	47.3	46.7	45.3	47.8	-34.5	-4.1	P .01
N. DAK.	45.54	20.1	20.0	20.2	23.4	20.7	20.7	24.2	20.3	16.8	17.1	17.9	-14.8	-1.6	N.S.
WYO.	62.33	10.8	12.7	9.8	12.1	15.9	13.0	9.3	20.7	19.5	9.5	9.5	15.4	1.4	N.S.
SUBTOTAL	342.27	24.1	23.8	25.2	23.7	23.9	22.3	19.5	19.6	17.2	16.7	16.5	-36.3	-4.4	P .01
TOTAL	882.96	25.7	24.8	25.9	23.9	26.1	23.6	23.1	22.2	21.7	20.8	24.3	-14.8	-1.6	P .05

TABLE 3.--TRENDS IN MORNING DOVE BREEDING DENSITY INDICES BY STATE, 1962-72--CONTINUED.

WESTERN MANAGEMENT UNIT

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE Doves HEARD CALLING PER ROUTE 1.27										LINEAR REGRESSION, 1962-72		
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL ANNUAL	PERCENT CHANGE STAT.
HUNTING STATES														
ARIZ.	72.65	23.8	22.7	27.6	26.6	30.4	27.6	24.2	27.0	20.0	13.1	17.5	-31.7	P .10
CALIF.	101.71	29.2	29.2	32.0	21.6	17.3	14.2	11.9	11.5	10.9	11.1	11.8	-76.4	P .01
IDAHO	54.37	18.3	18.3	20.6	19.4	18.6	17.8	18.0	17.0	21.8	22.7	29.4	38.3	P .05
NEV.	71.27	1.2	1.8	2.9	2.7	4.0	4.4	8.2	6.3	5.7	3.3	6.6	255.1	P .05
OREG.	62.27	18.2	16.8	18.1	14.1	14.0	12.9	13.2	15.0	10.3	11.9	11.2	-39.6	P .01
UTAH	53.34	13.6	13.4	12.9	13.7	14.8	22.2	12.6	9.4	7.8	13.8	9.2	-27.9	N.S.
WASH.	43.87	11.0	9.8	12.2	13.1	13.3	11.4	10.5	11.1	12.3	12.4	12.0	4.6	N.S.
TOTAL	459.48	17.7	17.3	19.5	16.4	16.3	15.7	14.1	14.0	12.5	12.1	13.6	-34.0	P .01

UNITED STATES SUMMARY

STATE	LAND AREA WEIGHT	ADJUSTED AVERAGE Doves HEARD CALLING PER ROUTE 1.27										LINEAR REGRESSION, 1962-72		
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL ANNUAL	PERCENT CHANGE STAT.
HUNT	1378.62	22.5	21.2	22.8	20.9	22.0	20.2	19.9	19.1	19.3	18.1	21.0	-14.7	P .01
NONHUNT	540.84	19.9	20.1	20.6	19.2	20.4	19.5	17.5	17.6	16.0	16.3	16.1	-23.5	P .01
TOTAL	1919.46	21.8	20.9	22.2	20.4	21.5	20.0	19.2	18.7	18.4	17.6	19.6	-17.1	P .01

1/ THE AVERAGE NUMBER OF Doves HEARD PER ROUTE ADJUSTED ANNUALLY TO A BASE YEAR ACCORDING TO THE PERCENT CHANGE FROM PRECEDING YEAR ON COMPARABLE ROUTES. EXCEPT AS NOTED, 1967 SELECTED AS BASE YEAR, REPRESENTING THE MEAN NUMBER OF Doves HEARD ON COMPARABLE ROUTES RUN IN BOTH 1966 AND 1967. MAINE, N.H., R.I., AND VT. INDICES ASSIGNED 1971 BASE YEAR, REPRESENTING THE MEAN NUMBER OF Doves HEARD ON COMPARABLE ROUTES RUN IN BOTH 1970 AND 1971. SEE TEXT FOR ADDITIONAL INFORMATION.

2/ UNIT AND SUBUNIT INDICES DERIVED FROM WEIGHTED STATE VALUES (THIS TABLE) CARRIED TO 3 POSITIONS.

3/ STATISTICAL SIGNIFICANCE OF TRENDS: N.S. = NOT SIGNIFICANT (P>.10); N.E. = NO ESTIMATE AVAILABLE.

TABLE 4.--TRENDS IN MORNING DOVE BREEDING DENSITY INDICES BY PHYSIOGRAPHIC REGION, 1965-72.

EASTERN MANAGEMENT UNIT

REGION	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER BOWIE 1.27											LINEAR REGRESSION, 1965-72		
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL	ANNUAL	SIGN.
10	32.10	N.E.	N.E.	N.E.	8.8	4.3	3.8	3.6	2.8	2.0	3.4	3.4	-67.0	-14.6	P .10
31	15.34	N.E.	N.E.	N.E.	29.5	30.3	28.5	28.2	21.5	24.9	27.5	31.1	-6.0	-0.9	N.S.
32	16.40	N.E.	N.E.	N.E.	53.0	39.3	45.8	47.9	44.5	39.6	40.1	33.8	-25.7	-4.2	P .05
33	24.79	N.E.	N.E.	N.E.	13.4	10.2	10.1	9.1	9.1	11.5	7.2	10.2	-24.2	-3.9	N.S.
34	63.72	N.E.	N.E.	N.E.	26.8	22.9	20.6	17.7	20.4	21.2	19.9	23.5	-12.1	-1.8	N.S.
35	20.50	N.E.	N.E.	N.E.	27.1	28.4	29.1	27.4	28.7	34.8	36.7	32.8	31.4	4.0	P .05
36	15.69	N.E.	N.E.	N.E.	18.1	19.6	18.0	16.6	16.3	16.3	20.2	20.9	8.3	1.1	N.S.
37	33.14	N.E.	N.E.	N.E.	12.1	12.7	11.8	10.5	16.0	17.6	8.5	5.3	-27.9	-4.6	N.S.
41	39.35	N.E.	N.E.	N.E.	19.3	21.1	17.6	22.8	17.9	16.7	13.7	9.8	-42.1	-7.5	P .05
42	3.51	N.E.	N.E.	N.E.	14.6	24.1	24.6	35.7	31.4	27.3	31.5	33.1	68.7	7.8	P .05
51 5/	1.93	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
52	6.09	N.E.	N.E.	N.E.	10.0	13.2	11.2	13.2	7.7	11.8	10.3	12.2	-2.1	-0.3	N.S.
61	17.62	N.E.	N.E.	N.E.	25.6	25.6	20.5	16.4	19.1	33.0	24.8	32.2	32.3	4.1	N.S.
62	18.99	N.E.	N.E.	N.E.	17.0	15.4	12.2	15.6	16.8	14.4	11.0	12.2	-24.5	-3.9	N.S.
70 5/	2.40	N.E.	N.E.	N.E.	N.E.	N.E.	0.0	N.E.	0.0	0.0	0.0	0.0	0.0	0.0	N.S.
81	27.02	N.E.	N.E.	N.E.	7.4	9.2	14.5	12.2	9.3	7.9	7.8	10.0	-9.2	-1.4	N.S.
82	1.32	N.E.	N.E.	N.E.	N.E.	3.0	0.0	1.0	0.0	0.0	0.0	0.0	-100.0	-80.2	P .10
85	32.72	N.E.	N.E.	N.E.	5.4	6.5	4.9	3.3	4.1	3.7	5.1	4.8	-21.9	-3.5	N.S.
86	7.27	N.E.	N.E.	N.E.	11.2	10.8	7.9	9.4	9.7	9.5	7.1	8.7	-24.2	-3.9	P .10
91	9.28	N.E.	N.E.	N.E.	N.E.	28.7	35.3	17.8	4.7	10.2	11.3	11.6	-80.2	-23.7	P .10
92 5/	10.00	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	0.4	0.7	2.6	1.9	427.5	74.1	N.S.
93 5/	20.12	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	0.0	0.0	0.0	0.0	0.0	0.0	N.S.
95 5/	1.64	N.E.	N.E.	N.E.	N.E.	N.E.	1.5	1.5	1.5	3.9	2.0	4.0	190.7	23.8	N.S.
100	6.71	N.E.	N.E.	N.E.	N.E.	0.7	0.0	0.0	0.0	0.0	0.0	0.0	-100.0	-74.0	N.S.
111	25.51	N.E.	N.E.	N.E.	43.3	45.1	39.3	38.5	35.6	35.1	37.8	38.0	-17.4	-2.7	P .05
112	6.70	N.E.	N.E.	N.E.	18.2	31.3	17.0	14.2	20.8	17.7	18.1	17.4	-23.8	-3.8	N.S.
113	2.07	N.E.	N.E.	N.E.	27.0	27.0	10.9	17.6	15.2	17.5	12.4	21.2	-35.6	-6.1	N.S.
121	46.46	N.E.	N.E.	N.E.	10.0	15.6	15.7	12.6	15.3	13.1	15.9	15.5	22.8	3.0	N.S.
123	12.09	N.E.	N.E.	N.E.	22.7	18.6	23.0	19.8	15.3	16.0	19.8	20.5	-13.9	-2.1	N.S.
124	56.27	N.E.	N.E.	N.E.	28.2	32.9	35.3	36.3	34.1	40.1	34.2	35.1	17.6	2.3	N.S.
141	0.27	N.E.	N.E.	N.E.	30.3	26.2	32.6	33.5	27.8	30.7	24.7	37.2	8.4	1.2	N.S.
TOTAL/	577.02	N.E.	N.E.	N.E.	18.4	18.9	17.9	17.3	17.0	18.0	17.1	17.4	-7.2	-1.1	P .10

TABLE 4.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDICES BY PHYSIOGRAPHIC REGION, 1965-72--CONT.

CENTRAL MANAGEMENT UNIT

REGION	LAND AREA WEIGHT	ADJUSTED_AVERAGE_DOVES_HEARD_CALLING_PER_SQ_MILE_1965-1972										LINEAR_REGRESSION_1965-72			
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL	ANNUAL	SIGN.
10	30.37	N.E.	N.E.	N.E.	8.8	4.3	3.8	3.6	2.8	2.0	3.4	3.4	-67.0	-14.6	P .10
35	16.60	N.E.	N.E.	N.E.	27.1	28.4	29.1	27.4	28.7	34.8	36.7	32.8	31.4	4.0	P .05
36	77.45	N.E.	N.E.	N.E.	18.1	19.6	18.0	16.6	16.3	16.3	20.2	20.9	8.3	1.1	N.S.
122	64.68	N.E.	N.E.	N.E.	34.1	37.0	33.6	35.5	27.4	25.1	30.5	31.2	-20.3	-3.2	N.S.
123	2.54	N.E.	N.E.	N.E.	22.7	18.6	23.0	19.8	15.3	16.0	19.8	20.5	-13.9	-2.1	N.S.
124	0.82	N.E.	N.E.	N.E.	28.2	32.9	35.3	36.3	34.1	40.1	34.2	35.1	17.6	2.3	N.S.
125	58.68	N.E.	N.E.	N.E.	38.9	46.5	43.1	50.8	37.7	33.2	38.3	45.0	-7.9	-1.2	N.S.
126	71.40	N.E.	N.E.	N.E.	35.4	36.0	43.3	43.6	37.9	43.1	38.6	52.1	28.5	3.6	P .10
130	14.35	N.E.	N.E.	N.E.	50.9	67.8	37.4	49.3	45.3	41.5	37.5	39.5	-33.5	-5.7	P .10
131	46.47	N.E.	N.E.	N.E.	18.5	15.7	12.9	20.7	24.1	19.6	22.3	24.1	50.5	6.0	P .10
132	81.54	N.E.	N.E.	N.E.	41.1	45.0	37.1	23.0	21.0	18.4	23.2	20.5	-62.3	-13.0	P .01
133	2.89	N.E.	N.E.	N.E.	5.0	5.0	0.0	N.E.	41.0	71.1	23.2	31.4	-43.3	-17.2	N.S.
134	97.09	N.E.	N.E.	N.E.	27.5	22.0	20.0	24.2	23.8	22.9	22.6	23.2	-6.4	-0.9	N.S.
135	25.78	N.E.	N.E.	N.E.	50.8	53.1	61.7	59.3	64.8	66.7	61.6	68.1	28.9	3.7	P .01
136	16.40	N.E.	N.E.	N.E.	16.6	15.4	14.7	12.6	19.4	20.7	10.9	20.5	16.2	2.2	N.S.
137	10.54	N.E.	N.E.	N.E.	2.3	11.0	4.2	6.1	7.4	11.1	9.4	5.2	50.1	6.0	N.S.
138	19.75	N.E.	N.E.	N.E.	114.3	165.0	28.7	41.6	14.8	17.3	4.9	9.0	-100.0	-86.4	P .05
139	22.05	N.E.	N.E.	N.E.	1.8	1.6	24.5	8.7	19.8	17.0	9.6	12.1	109.4	11.1	N.S.
141	27.75	N.E.	N.E.	N.E.	30.3	26.2	32.6	33.5	27.8	30.7	24.7	37.2	8.4	1.2	N.S.
142	3.11	N.E.	N.E.	N.E.	19.4	7.4	5.0	2.3	3.5	2.3	1.9	6.1	-94.1	-33.3	P .10
151	4.70	N.E.	N.E.	N.E.	6.7	20.2	13.0	21.0	21.5	15.9	20.6	26.2	102.6	10.6	P .05
152	6.98	N.E.	N.E.	N.E.	3.0	3.0	3.3	3.9	4.9	3.3	5.0	4.9	70.2	7.9	P .05
160	28.53	N.E.	N.E.	N.E.	2.9	5.1	2.6	4.4	7.5	5.2	4.3	5.8	62.4	7.2	N.S.
170	24.23	N.E.	N.E.	N.E.	10.9	14.5	17.2	8.1	13.4	17.9	12.2	13.0	6.6	0.9	N.S.
180	23.58	N.E.	N.E.	N.E.	3.7	5.6	6.4	7.7	7.7	7.4	5.8	5.0	19.2	2.5	N.S.
190	33.18	N.E.	N.E.	N.E.	8.2	9.9	7.1	6.1	7.2	8.2	10.3	8.8	11.4	1.6	N.S.
212	4.68	N.E.	N.E.	N.E.	8.2	22.7	55.7	9.9	14.4	5.4	17.5	7.5	-59.0	-12.0	N.S.
213	6.02	N.E.	N.E.	N.E.	0.9	1.4	4.0	4.2	6.2	8.1	9.5	6.7	688.9	34.3	P .01
214	11.49	N.E.	N.E.	N.E.	8.3	16.9	7.1	9.0	10.3	8.8	4.8	13.6	-13.3	-2.0	N.S.
216	7.07	N.E.	N.E.	N.E.	84.7	75.6	28.7	46.5	20.6	17.9	48.7	28.1	-71.7	-16.5	P .10
224	31.91	N.E.	N.E.	N.E.	20.5	18.7	16.8	15.2	15.5	13.2	14.4	18.2	-21.5	-3.4	N.S.
225	10.33	N.E.	N.E.	N.E.	N.E.	5.6	2.2	3.9	6.1	12.3	N.E.	N.E.	N.E.	N.E.	N.E.

TOTAL/AVERAGE	882.96	N.E.	N.E.	N.E.	23.9	26.1	23.6	23.1	22.2	21.7	20.8	24.3	-10.3	-1.5	N.S.
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TABLE 4.--TRENDS IN MORNING DOVE BREEDING DENSITY INDICES BY PHYSIOGRAPHIC REGION, 1965-72--CONT.

WESTERN MANAGEMENT UNIT

REGION	LAND AREA WEIGHT	ADJUSTED AVERAGE DOVES HEARD CALLING PER ROUIE 1,2,2,--										LINEAR REGRESSION, 1965-72			
		1962	1963	1964	1965	1966	1967	1968	1969	1970	1971	1972	TOTAL	ANNUAL	SIGN.
180	8.00	N.E.	N.E.	N.E.	3.7	5.6	6.4	7.7	7.7	7.4	5.8	5.0	19.2	2.5	N.S.
190	32.19	N.E.	N.E.	N.E.	8.2	9.9	7.1	6.1	7.2	8.2	10.3	8.8	11.4	1.6	N.S.
201	27.15	N.E.	N.E.	N.E.	8.9	9.9	9.0	11.2	9.1	8.3	9.9	9.2	-1.7	-0.2	N.S.
202	5.05	N.E.	N.E.	N.E.	6.5	7.2	5.8	8.4	5.9	7.5	7.5	6.3	3.1	0.4	N.S.
203	19.43	N.E.	N.E.	N.E.	6.8	16.0	21.1	16.4	17.3	18.6	22.7	22.3	94.0	9.9	P .05
204	11.00	N.E.	N.E.	N.E.	12.2	23.3	22.2	20.9	14.4	22.6	18.1	31.9	54.8	6.4	N.S.
205	6.17	N.E.	N.E.	N.E.	92.8	172.3	39.8	30.9	44.3	28.7	15.7	13.8	-100.0	-86.3	P .05
211	8.20	N.E.	N.E.	N.E.	7.7	10.2	9.5	5.0	0.0	6.7	14.4	27.8	311.3	22.4	N.S.
212	5.96	N.E.	N.E.	N.E.	8.2	22.7	55.7	9.9	14.4	5.4	17.5	7.5	-59.0	-12.0	N.S.
213	12.24	N.E.	N.E.	N.E.	0.9	1.4	4.0	4.2	6.2	8.1	9.5	6.7	688.9	34.3	P .01
214	12.54	N.E.	N.E.	N.E.	8.3	16.9	7.1	9.0	10.3	8.8	4.8	13.6	-13.3	-2.0	N.S.
215	13.78	N.E.	N.E.	N.E.	6.9	11.8	13.7	10.0	29.2	14.4	12.6	17.5	80.0	8.8	N.S.
216	1.46	N.E.	N.E.	N.E.	84.7	75.6	28.7	46.5	20.6	17.9	48.7	28.1	-71.7	-16.5	P .10
221	115.89	N.E.	N.E.	N.E.	11.1	11.5	14.1	13.8	10.2	9.0	9.1	9.1	-29.3	-4.8	P .10
222	35.86	N.E.	N.E.	N.E.	50.0	49.5	36.8	31.1	27.6	18.7	14.4	17.5	-76.9	-18.9	P .01
223	4.20	N.E.	N.E.	N.E.	25.4	21.9	22.4	18.5	19.6	26.1	27.9	28.0	23.6	3.1	N.S.
224	4.20	N.E.	N.E.	N.E.	20.5	18.7	16.8	15.2	15.5	13.2	14.4	18.2	-21.5	-3.4	N.S.
231	7.99	N.E.	N.E.	N.E.	16.9	12.1	11.9	12.2	15.2	11.2	9.5	10.0	-33.8	-5.7	P .10
232	14.07	N.E.	N.E.	N.E.	7.9	8.1	5.5	4.9	3.0	2.1	4.4	1.5	-80.4	-20.8	P .01
233 5/	4.42	N.E.	N.E.	N.E.	46.6	20.0	19.0	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
234	16.87	N.E.	N.E.	N.E.	11.0	12.2	11.9	10.9	9.3	10.7	8.9	9.6	-22.3	-3.5	P .05
241	8.84	N.E.	N.E.	N.E.	0.5	0.0	2.5	2.5	0.8	0.8	0.0	0.5	-45.9	-8.4	N.S.
242	2.95	N.E.	N.E.	N.E.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	N.S.
243	8.29	N.E.	N.E.	N.E.	28.2	10.1	4.0	28.2	2.0	6.0	4.0	16.0	-63.1	-13.3	N.S.
244	10.48	N.E.	N.E.	N.E.	6.6	5.4	4.9	6.8	7.3	7.1	8.7	5.9	27.3	3.5	N.S.
245	13.01	N.E.	N.E.	N.E.	20.5	15.3	12.6	13.3	13.5	11.1	14.0	14.4	-26.8	-4.4	N.S.
246	19.64	N.E.	N.E.	N.E.	31.2	26.2	22.8	23.5	21.3	21.1	21.2	25.0	-23.2	-3.7	P .10
247	8.10	N.E.	N.E.	N.E.	7.4	5.2	4.3	1.8	6.0	6.0	3.2	1.8	-54.1	-10.5	N.S.
250 5/	1.50	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.	N.E.
TOTAL/AVERAGE	459.48	N.E.	N.E.	N.E.	16.4	16.3	15.7	14.1	14.0	12.5	12.1	13.6	-25.5	-4.1	P .01

TABLE 4.--TRENDS IN MOURNING DOVE BREEDING DENSITY INDICES BY PHYSIOGRAPHIC REGION, 1965-72.

FOOTNOTES

1/ THE AVERAGE NUMBER OF DOVES HEARD PER ROUTE ADJUSTED ANNUALLY TO A BASE YEAR ACCORDING TO THE PERCENT CHANGE FROM PRECEDING YEAR 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. N.E. = NO ESTIMATE AVAILABLE.

WHEN A PHYSIOGRAPHIC REGION IS BISECTED BY A MANAGEMENT UNIT BOUNDARY, ITS MEAN BREEDING DENSITY INDEX IS ASSIGNED TO BOTH UNITS.

2/ THE MANAGEMENT UNIT BREEDING INDICES ARE OBTAINED FROM TABLE 3.

3/ REGRESSION ANALYSIS: (1) 0.0 CALCULATED AS 0.0001.

(2) ANNUAL PERCENT CHANGE GREATER THAN 999 EQUALS NO ESTIMATE (N.E.).

4/ STATISTICAL SIGNIFICANCE OF TREND: N.S. = NOT SIGNIFICANT ($P > .10$); N.E. = NO ESTIMATE AVAILABLE.

5/ LINEAR REGRESSION ANALYSIS FROM MOST RECENT AVAILABLE DATA, RESULTS NOT COMPARABLE TO OTHER ANALYSES.



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