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# THE BREEDING BIRD SURVEY 1967 and 1968



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# THE BREEDING BIRD SURVEY

## 1967 and 1968

By

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## ABSTRACT

In the Breeding Bird Survey of North America, cooperators ran 982 survey routes in 1967 and 1,174 in 1968. All States except Hawaii and all Canadian Provinces except Newfoundland were included. Roadside routes are selected at random within 1-degree blocks of latitude and longitude. Each  $24\frac{1}{2}$ -mile route, with 3-minute stops spaced half a mile apart, is driven by automobile. All birds heard or seen at the stops are recorded on special forms, and the data are transferred to magnetic tape for analysis. The average number of birds of each species per route is tabulated by State and Province, presenting for the first time a record of the comparative abundance of each species across the continent. The sample size is given for each species recorded. A sophisticated analysis program, here employed for the first time, is used to compute weighted mean values of the survey results for selected species at the State, stratum, regional, and continental level. The statistical significance of year-to-year changes at the 80, 90, 95, and 99 percent levels of probability are part of the computer output. An index for comparing populations of each species from year to year is established, with 1968 as the base year. Maps show the breeding range and comparative abundance of selected species.

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## INTRODUCTION

In June 1966, with the help of carefully selected amateur and professional ornithologists, the first large-scale Breeding Bird Survey was conducted in the United States and Canada east of the Mississippi River. Cooperators conducted 585 roadside counts, each including fifty 3-minute stops. The counts were conducted along routes whose starting points and directions were established at random within 1-degree blocks of latitude and longitude. The results were tabulated by species and by State or Province and were published in *The Breeding Bird Survey, 1966* (Robbins and Van Velzen, 1967). That report also included a statement of the urgent need for a continental breeding bird survey, a discussion of some of the biases involved, and maps showing the breeding distribution and relative abundance east of the Mississippi River of 12 selected species.

In 1967, coverage was extended westward to include Manitoba, the Dakotas, Nebraska, Kansas, Oklahoma, and Texas. Density of coverage was improved in some of the Eastern States and Provinces, and 982 routes were successfully inventoried during the 1967 breeding season. A preliminary report (Robbins and Van Velzen, 1968) gave participants a summary of the 1967 results.

In 1968, coverage was extended westward to the Pacific States and Provinces, with a total of 1,174 routes.

## METHODS

The methods used for recording observations in the field are the same as those described in the 1966 report and will be reviewed only briefly here.

### Selection of routes

Routes were selected according to stratified random sampling design (Cochran, 1953). The basic sampling unit is a degree block of latitude and longitude. These blocks decrease slightly in size with increasing distance from the equator. North-south dimensions are uniformly about 70 miles, and east-west dimensions are about 50 miles. Intensity of coverage in various parts of the continent depended on availability of qualified personnel. An effort was made to obtain uniform density of sampling throughout a given State or Province, but the number of routes per block varied from one State to another. In most Southern and Central States, two roadside routes were selected at random in each degree block of latitude and longitude. From Tennessee and Virginia northward, four routes were mapped for each block except for the States of Pennsylvania, New York, Vermont, and New Hampshire, which had eight routes per block, and Delaware and Maryland with 16. In most of the Western States and Provinces, and in those parts of the Dakotas, Nebraska, Kansas, Oklahoma,

and Texas lying west of the 100th meridian, the original sampling plan was reduced to two routes per 2-degree block ( $2^{\circ} \times 2^{\circ}$ ), or one-fourth the coverage in adjacent parts of the same States. In western California, Oregon, and Washington, however, sampling was at a density of one route per degree block. Coverage in Alaska was of necessity limited to that State's comparatively short road system, but three routes were run in 1968, and others have been drawn for future coverage.

The starting point and the direction of each route were determined by drawing numbers from a table of random digits. Most routes were established by the Migratory Bird Populations Station and marked onto maps that were sent to the cooperators.

A uniform plan was used in outlining the routes onto road maps so that the stops would not be prejudiced in favor of any particular habitats or conditions other than those imposed by the highway engineers, who tend to avoid steep slopes and extensive marshes, and by the influence of the road on the habitat.

For practical reasons, counting has to be limited to roadsides. Hence the breeding bird count is a sample of roadside habitats and not of all habitats in the States and Provinces. This fact should be kept in mind when conclusions are drawn from the data obtained.

#### Observer contacts

As in 1966, observers for the Breeding Bird Survey were handpicked by State and Provincial coordinators. The names of the cooperators were submitted to the Migratory Bird Populations Station, and the instructions, maps, and report forms were distributed by this Station. Wherever possible, observers were encouraged to cover the same route or routes as in prior years in order to keep observer variability to a minimum. The outstanding success of this Survey in its formative years is very largely a result of the wholehearted cooperation of the State and Provincial coordinators who are listed on pages 23-26. Without the enthusiastic participation of these coordinators the Survey would not have been possible.

#### Field procedures

Procedures, which have been carefully standardized, were the same as in 1966. Each observer was instructed to start at exactly one-half hour before local sunrise and to make fifty 3-minute stops along the predetermined route. The stops were set at one-half-mile intervals with the stipulation that the observer could deviate as much as one-tenth of a mile from the standard interval in order to avoid sharp curves or places where it would be dangerous to stop. At each stop the observer watched and listened for exactly 3 minutes and counted the number of birds of each species detected during this period. Birds observed before or after the 3-minute period were not included in the Survey, nor were birds that were seen while driving between stops.



## Recording of data

In order to facilitate the recording of observations in the field, 14 regional field sheets were designed for use in different sections of the continent. Each field sheet contained the names of the species most likely to be recorded in the area for which it was designed. Following the name of each species were 10 columns for recording separately the counts made at each of 10 consecutive stops. A separate sheet was used for each 10 stops. All birds seen within one-quarter mile of the stop were counted during the 3-minute interval, and all birds heard, regardless of distance, were recorded. No effort was made to separate birds seen from birds heard. Birds seen in flight were treated the same as birds seen perched, feeding, singing, or otherwise occupied. Up to one additional minute of observation was allowed at stops where there was excessive interference such as heavy traffic, airplanes, etc.; the instructions specified that the additional minute could be permitted only at stops where interference was great, not routinely at all stops.

At the conclusion of the 50 stops, the data were transferred to a summary sheet that gave totals for each species for each set of 10 consecutive stops as well as the 50-stop totals and the number of stops (out of a possible 50) at which each species was noted. The summary sheet also contained information on starting and finishing times and weather conditions as well as date, observer, and route identification. A copy of each field sheet and of the summary sheet was mailed directly to the State coordinator or to the Migratory Bird Populations Station.

## Coverage

The Survey was scheduled to be completed during the month of June except for a few counts that were taken in late May in the far South and a few that were covered in early July in the northern tier of States and in Canada. The few routes that were covered earlier or later than the stipulated period for each State or Province were omitted from the statistical analysis because of the possibility that migrants were included or the probability that some of the breeding birds had not yet arrived.

Except for certain experimental routes, each was covered only once. This report presents a summary and analysis of data obtained on the 982 routes that were successfully run in 1967 and the 1,174 routes that were completed in 1968. Figures 1 and 2 show the locations of the 1967 and 1968 routes.

In order to minimize variability resulting from different weather conditions, observers were requested not to run their routes during rainy or foggy weather or if the wind exceeded 12 miles per hour (3 on the Beaufort Scale). Under ideal conditions a survey route can be completed in 4 hours but, where roads are in poor condition or excessive noise is encountered, the time may extend to  $4\frac{1}{2}$  hours or more.

## Processing of data

Upon receipt at the Migratory Bird Populations Station, each report was acknowledged, entered on a master map of coverage, and reviewed by an experienced ornithologist who added codes indicating the number of the "stratum" or ecological region in which the route was located, the number of consecutive years the route had been covered by the same observer, and the type of route (such as regular or experimental). In 1968, the starting time was checked against a table of local sunrise times, and if it was found that a route was started appreciably earlier or later than a half hour before sunrise, the number of minutes early or late was entered on the form for future reference. The sky and wind conditions on each report were checked and those few reports that were made under seriously substandard conditions were marked "Experimental" and identified with an appropriate code.

After being checked visually, the summary sheets were transmitted to the Station's Electronic Data Processing Section to be put on magnetic tape. After key punching and verifying, the records were run through a series of accuracy checks. The basic check initiated in 1966 concerned the accuracy of the addition, by the observers, of the page totals on the summary sheets. Other automatic quality checks are still being worked into the machine editing program, and these will be described at a later date.

Thanks to the installation of more sophisticated electronic data processing equipment, it was possible, starting with the 1968 records, to send each observer a printout of his summary as it exists on magnetic tape, incorporating the common name of each species in the printed report. In prior years AOU code numbers rather than species names had to be used, and this made it more difficult for the observers to check the machine tabulations for accuracy. The use of species names instead of code numbers is now part of the normal routine. Tables 2 through 4 of this report were photographed directly from tables produced by the computer.

A carbon copy of the machine listing for each route was sent to the State coordinator together with a summary by species containing all the detailed records for his State or Province.

A listing for each species, arranged by State and route, has also been prepared each year. This information is available to anyone working on a given species.

## Quality control

There are many potential sources of bias in bird population data gathered by different individuals in many different areas under a great variety of weather conditions. In order to get maximum value from the thousands of hours of field work by our very specialized corps of volunteer observers, we believe it is necessary to standardize field coverage as much as possible and to adopt strict specifications for data that will be used in certain of the analysis procedures. We have

attempted to standardize the procedures over which there can be some control: starting time with respect to sunrise, number of stops, time spent observing at each stop, and maximum distance at which birds seen may be counted. Limitations have also been set on earliest and latest acceptable dates, and acceptable levels of wind speed, visibility, and precipitation.

Among the factors not controllable are (1) how well the observer follows instructions, (2) marginal weather conditions on the only day the observer can census the route, (3) year-to-year variability in weather within the range of acceptable conditions--for instance, very heavy overcast at the beginning of the count, which may reduce visibility or seriously affect the activity pattern of some bird species, (4) unusual seasonal conditions which may accelerate or retard nesting cycles or migration of certain species, and (5) circumstances resulting in late starts or prolonged route coverage which may yield atypical data for some or all species.

Aside from biases in field coverage, there are opportunities for errors or omissions when summary sheets are prepared from the field sheets, during the editing stage, and when records are keypunched. There are additional chances for error when corrections are punched and substituted for original records on the magnetic tapes.

Experience has shown that the most frequent errors are those in preparing summary sheets from field sheets. If the final figures on the summary sheet do not add up correctly, the error is detected by the computer, and the editor goes back to the field sheets to check totals. If, on the other hand, summary sheet totals check out perfectly, the editor does not go back to the individual field sheets and check these by hand against the summary sheet. We mention this so that observers will take extra care to see that all information reported on summary sheets agrees with data on their field sheets.

About 2 percent of the observers omit one or more species from their summary sheet or enter data on a wrong line, opposite the name of a different species. Omissions often can be detected in our office and the missing records found and added to the summary sheet. If records are on the wrong line, our biologists frequently, but not always, are able to spot the error and make the correction. If the error is not caught during editing, it will be noticed--we hope--by the observer at the time he receives his machine-printed tabulation.

Observers are urged to report all mistakes, no matter how slight they may seem. Omissions can be especially serious if the unreported species is a common one. This is because in the statistical analysis of population change from year to year it is necessary to create "zero" records for unrecorded species. This zero entry distinguishes between lack of a record because a route was not covered in a given year and the absence of a species on a route that was covered. For instance, if a count of 50 Cardinals on a given route is omitted by mistake, the record subsequently fed into the computer shows zero Cardinals for this

particular route. This not only reduces the average count of Cardinals for that State and stratum for the year, but also increases the standard deviation of the sample and reduces the possibility of recognizing an actual change in population.

As mentioned under the heading "Processing of data," routes covered under rainy or windy conditions or started much too late or too early are given special experimental codes, and they can be included or excluded from various types of analysis. Starting a route 10 or 15 minutes late may have very little effect on the count except perhaps for eliminating the possibility of hearing owls, goatsuckers, and other crepuscular species, but starting one-half hour or more late means that much of the dawn chorus is missed, creating a considerable drop in the numbers of certain species. We wish to emphasize that data from all routes that are successfully completed, even though under substandard conditions, can and will be used for many purposes. For example, we cannot learn the effect of strong winds or rain if we do not have some routes covered under these conditions, and data not considered sufficiently typical for use in statistical analyses may prove helpful for mapping distribution and abundance. We prefer that if an observer encounters undesirable conditions on his route, he return and cover it again under better conditions, if possible. But the data obtained on the "unsatisfactory" coverage can also be very valuable for research purposes and should be sent in marked "Experimental."

Much research remains to be done on the extent to which various weather conditions affect the counts of individual species. The Breeding Bird Survey is furnishing a tremendous amount of data for analysis of effect of weather, time of day, time in the nesting cycle, and other variables. As soon as the more routine aspects of processing and analyzing the data have been perfected, attention will be given to analyzing the effects of these conditions.

## **RESULTS**

### Sample size

Persons using data from this report will wish to know the size of the sample as well as the comparative abundance of each species in various parts of the breeding range.

Table 1 lists the number of individuals for each species recorded on the 1967 and 1968 Breeding Bird Surveys. The 1967 and 1968 figures are not directly comparable because of important differences in coverage. The western States and Provinces (from Saskatchewan, Montana, Wyoming, Colorado, and New Mexico westward) were sampled only in 1968, whereas the other States and Provinces were sampled in both years. Even in the Central and Eastern States, coverage varied slightly from year to year, so differences in totals do not necessarily indicate an increase or decrease in bird population.

There are two important reasons why the figures in table 1 cannot be used to compare the abundance of different species. First, the most conspicuous species (either by sight or by sound) are observed in much larger numbers than smaller, less vocal, and more secretive species. Second, density of coverage varies greatly from one part of the continent to another, and species common in States or Provinces with high density of coverage will appear to be more abundant in table 1 than species common in areas where there is comparatively light coverage.

### Summaries by States and Provinces

Tables 2, 3, and 4 present figures on the relative abundance of breeding birds throughout the continental United States, southern Canada, and central Alaska. For most species this is the first time data on comparative abundance have been available on anything approaching continental scale. These tables were prepared on the Migratory Bird Populations Station's computer by summing the counts for each species in each State or Province and dividing by the number of routes run in that State or Province. In the central and eastern regions, data are given for both 1967 and 1968; in the western region, data are available only for 1968. All figures in tables 2, 3, and 4 have been rounded to the nearest whole number; a number less than 0.5 is shown as a plus (+) sign.

The following species were omitted from those portions of tables 2, 3, and/or 4 where they were late migrants outside their breeding range or summer stragglers many miles from the closest nesting area: Red-throated Loon, Eared Grebe, White Pelican, Little Blue Heron, Canada Goose, American Widgeon, Redhead, Canvasback, Greater Scaup, Oldsquaw, Red-breasted Merganser, Rough-legged Hawk, Golden Eagle, Peregrine Falcon, Black-bellied Plover, Ruddy Turnstone, Solitary Sandpiper, Greater Yellowlegs, Lesser Yellowlegs, Pectoral Sandpiper, White-rumped Sandpiper, Least Sandpiper, Dunlin, Short-billed Dowitcher, Stilt Sandpiper, Semipalmated Sandpiper, Sanderling, Great Black-backed Gull, Herring Gull, Ring-billed Gull, Franklin's Gull, Bonaparte's Gull, Royal Tern, Caspian Tern, Black Tern, Black-billed Cuckoo, Short-eared Owl, Least Flycatcher, Olive-sided Flycatcher, Tree Swallow, Bank Swallow, Townsend's Solitaire, Tennessee Warbler, Orange-crowned Warbler, Magnolia Warbler, Blackpoll Warbler, Mourning Warbler, Wilson's Warbler, Canada Warbler, Bobolink, Cassin's Finch, Common Redpoll, Tree Sparrow, Harris' Sparrow, White-crowned Sparrow, and White-throated Sparrow. Reference to table 1 will show the numbers of each of these species that were recorded on the Survey.

A word of caution in interpreting tables 2, 3, and 4 is in order. These tables are based on all the routes except the experimental ones; they are not restricted to routes that were run in both years. In many States coverage in 1968 was different from coverage in 1967. Although the number of routes run in a given State or Province would not necessarily affect the numbers given in the table (since the figures in the table are averages, not totals), a shift to more or fewer routes in woodland as opposed to prairie, for instance, could alter the average figures for many species even when there was no change in the bird population of that State. Fortunately, routes were well distributed through most States, and annual

differences in coverage usually resulted in only very minor changes in the average figures.

### Ecological stratification

To detect small changes in population between years it is necessary to group data for areas where the population is fairly similar. These small units, usually ecologically similar, can be combined into ecological regions such as coastal plain, piedmont, and mountain, which in turn can be combined to obtain figures for continental populations. Better measurement of change can be obtained by the use of ecological regions than by combining data on a State or Province basis, since many species vary greatly in abundance in different parts of the same State.

Although it is not easy to subdivide the continent into ecological regions whose boundaries precisely define the distribution or abundance of a large number of different bird species, an initial attempt has been made. It is expected that subsequent examination of the bird population data will permit more realistic boundaries for future ecological stratification of the continent. Figure 3 shows the stratification plan proposed for 1969.

### Analysis of population trends

The analysis of population trends is a complicated procedure requiring the computation of weighted mean population values for each year being compared and the determination whether annual differences exceed those that would be expected from chance alone.

Obviously, if two people run the same Breeding Bird Survey route, or if one person runs it on two different days, the results will not be identical. Furthermore, no two routes within the same stratum can be expected to give identical results. It is possible, however, to examine the results and determine the degree of variability within a given stratum. Variability is generally expressed as the standard deviation of individual observations or the standard error of the mean of a group of observations. Assuming that the samples (or observations) are representative of existing conditions, the laws of probability enable us to determine the limits within which a specified percentage of the observed values or of the mean values will occur. If year-to-year differences are greater than those expected due to chance alone, we conclude that a change in bird population has probably occurred. Unless the probability exceeds 95 percent, variability is ordinarily attributed to sampling error. If the computed change is so great that it would occur by chance only one time out of 100, then the change is concluded to be "highly significant."

A fundamental assumption in an analysis of this kind is that the observations within a given unit or stratum are "normally" distributed. It was found that for most species, when counts were taken well within the breeding range, the observations for a given stratum in a State followed basically a normal distribution, with a tendency to be skewed to the right (meaning that there were occasional very high counts that dis-

torted the shape of the curve). Because of this tendency toward distortion, an option was included on the statistical analysis plan to analyze the data in two ways: first, using the actual field observations; and second, using a square root transformation of the original field observations. The transformation fits the data more closely to a normal curve and permits more precise statistical calculations.

Forty species were selected for a study of population trends from 1966 to 1967, and 50 species for the period 1967 to 1968. Since coverage in 1966 was limited to States and Provinces east of the Mississippi River, only the eastern region could be used for the 1966-67 comparison. The 1967-68 comparison is available for only the central and the eastern regions, since only one year of data is available for the western region.

Table 5 gives a summary of the 1966-67 analysis. Only the Yellow-billed Cuckoo, Red-eyed Vireo, and Dickcissel (marked with two asterisks in table 5) show "highly significant" differences (weighted mean differences at least three times as great as standard errors). The Mourning Dove, Robin, and Cardinal (one asterisk in table 5) show "significant" differences (weighted mean differences twice as great as standard errors). The analysis of the 1966-67 data indicates that for all except the most common species, an average change of one bird per route will generally indicate a significant change in population level.

The 1966-67 analysis was performed on a comparatively crude temporary machine data program that was adapted for our use pending the writing of our own analysis program. A new Fortran IV program has been used for the first time to analyze the 1967-68 Breeding Bird Survey data. This program computes weighted means at all four regional levels and standard errors of the mean at three regional levels. It also facilitates combining of strata or changing of strata boundaries; permits the option of using either all comparable routes or only those covered by the same observer in both years; and the option of using square root transformation. A summary of the 1967-68 analysis for selected species is given in tables 6-8.

Table 6 covers the same Eastern States and Provinces for 1968 that table 5 did for 1967. Of the three species that showed a highly significant (99%) change in numbers from 1966 to 1967, the Yellow-billed Cuckoo showed a highly significant change in the opposite direction (increase) from 1967 to 1968; the Red-eyed Vireo showed a possible reversal (increase, but not at a significant level); and the Dickcissel showed a significant reversal (decrease). The three other species that changed significantly at the 95 percent level of probability from 1966 to 1967 had slight trends (not significant) in the opposite direction from 1967 to 1968.

Two additional species, the Red-tailed Hawk and American Goldfinch, appear to have made significant increases in the eastern region from 1967 to 1968.

In the central region (table 7) a highly significant decrease from 1967 to 1968 was registered for the Mourning Dove and a significant increase for the Barn Swallow.

Table 8 gives a combined weighted summary for the central and eastern regions. The percent change (underscored) for each species is accompanied by minimum and maximum percentage changes calculated from confidence limits at the 95-percent probability level. This follows the procedure proposed by Taylor (1965) and followed by the British Trust for Ornithology in their analyses of the British Common Birds Census results. The percentage changes recorded are greatest in table 7, which is based on the smallest sample size (222 routes), and least in table 8, which is based on all 802 routes that were run both years. Just as many significant changes at the stratum level disappear when strata are combined into regions, there are opposite trends between regions that are cancelled when regions are combined. When this occurs (see Black-capped Chickadee and Cattle Egret in tables 6, 7, and 8) the confidence limits for the combined area widen.

The small percentage changes in table 8 indicate that populations were quite stable, especially for the passerine species. Of 37 passerine species analyzed, only 6 (16%) had weighted mean differences of more than 10 percent, and half of the others were within 5 percent of their mean for the previous year.

Table 5 shows more changes downward than upward from 1966 to 1967; only 42.5 percent of the 40 species analyzed had increases in weighted means. From 1967 to 1968, on the other hand, there were more increases than decreases; 60.4 percent of the species that had differences of 1 percent or more in weighted means showed increases in the eastern region, as did 54.3 percent in the central region.

There is one important difference between the data used in compiling tables 1-4 and tables 5-8. The first four tables were based on all except experimental routes, whereas tables 5-8 were based only on routes covered in both years of the comparison.

#### All comparable routes versus those covered by the same observer

After the 1966-67 and 1967-68 analyses were made based on all routes covered in both years, certain species that showed some indication of change were reanalyzed using only routes covered by the same observer in both years. For most of these species there was no difference in the level of significance; but in the few cases where the standard error was enough lower by one method to make a difference in the probability level, the most critical analysis was made by examining all routes rather than only those that had been covered by the same observer in both years. Thus the increased sample size more than compensated for the additional variability caused by changing observers. We should stress here that continuity by the same observers will certainly help to reduce variability and permit detection of smaller changes in population.

#### Population indexes

Since coverage is bound to vary from year to year, the total numbers of individuals recorded (table 1) can never be used as the best index



of year-to-year changes. For this reason it was necessary to compute an index value that would not be affected by differences in density of coverage, either geographically or from year to year. Each State and Province was divided into ecological strata, and a weighted mean for each stratum was obtained by computing the mean number of individuals of a species in that segment of the stratum lying within a given State, then combining data from the separate portions of a given stratum to obtain the weighted mean number of birds per route for the entire stratum. This weighting was accomplished by multiplying the mean number of birds in a stratum of a given State by the percentage of the total stratum that occurs within that State or Province, following the same procedure for all other States represented in that stratum, and summing the products.

After a weighted mean was obtained for a species for each stratum, the strata were combined in the same way as the States within a stratum, to obtain a weighted mean value for each of the three major regions: west, central, and east. Finally, the weighted mean values for the three regions were combined in the same manner to obtain the continental mean. This provides weighted means at stratum, regional, and continental levels. Weighted mean values also were computed on State and Provincial levels but, unless a large number of routes are run in a given State or Province, these means cannot give as accurate an indication of population change as those given by the larger samples.

To follow population trends from year to year, it is convenient to adopt an arbitrary index value of 100 for a specified year and relate annual changes to this fixed base. Since 1968 was the first year that random counts were obtained from coast to coast, an index value of 100 has been assigned to each species for 1968--both for the continental index and for each of the three regional indexes. The index values for other years bear the same ratio to 100 that the weighted means for 1968 bear to the weighted means for the other years. Thus, an index value less than 100 for a given year indicates a population smaller than in 1968. The degree of change is directly related to the change in percentage--within the limits of sampling error.

Table 9 gives a summary of index values for species selected for statistical treatment--the only ones for which weighted means were computed. The western region is not represented in this table because no data are available for comparison with prior years.

#### Mapping of relative abundance

In the 1966 report, maps showed the distribution and relative abundance of 12 species in the parts of their ranges lying east of the Mississippi River. Base maps for selected species were prepared on a Univac 1004 computer which printed the totals for a given species on each route in the geographic position of that route. From these machine maps, shading was added on an overlay map, and this overlay was reproduced photographically. A selection of similar maps for 1967 and 1968 is presented in this report (figs. 4-36). The 1967 maps include only the central and eastern parts of the continent whereas the 1968 maps include

the western parts as well. Accordingly, most of the species selected for mapping in 1967 are species whose entire breeding range falls in the central and eastern portions of North America; while species typical of, or common in, parts of the West were chosen for mapping in 1968.

In order to simplify the maps slightly, a single route with lesser density than adjacent routes is shown with the same shading as adjacent routes; but if two or more routes differ from adjacent routes, they are shown with a different type of shading. Although mapping was fairly simple in the East, it was complex in the western mountains. This was because of the drastic altitudinal changes within small geographic limits and also because the density of coverage is less than that in most Eastern States. Maps in this report represent an initial attempt to solve these problems. It is hoped that both coverage and mapping techniques will improve so that distribution and abundance in the West can be more adequately plotted in the future.

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Marshall Strong Hellmann of the U. S. Geological Survey Computer Center developed the Fortran IV program for statistical analysis of year-to-year change.

Edmund W. Stiles and Paul G. Bystrak did much of the editing of incoming records and Danny Bystrak prepared the maps for publication.

Many other staff members of the Migratory Bird Populations Station contributed significantly to this report, especially David Anderson and Charles Lobdell (statistical procedures), James Ruos and Duncan MacDonald (stratification), John Rogers and Joseph Young (editorial), and Ethel Cobb and Agnes Nalley (typing).

Dr. A. J. Erskine of the Canadian Wildlife Service provided the stratification for the Canadian Provinces and has made helpful suggestions regarding many aspects of the Survey.

## BREEDING BIRD SURVEY COORDINATORS

Our very special thanks are extended to the State and Provincial Breeding Bird Survey Coordinators for their superb cooperation in arranging for coverage in their respective areas and for following through to obtain substitute observers for routes that could not be covered by the person to whom they were first assigned. Most of the coordinators for 1969 will be the same as in prior years. Their names, addresses and telephone numbers are listed below.

We wish to pay tribute to Louisiana Coordinator Dr. Hugh C. Land who provided such fine coverage of that State until his untimely death last fall. We also express our appreciation to the following coordinators who served in 1967 and 1968: Peter Dring, James Eike, Dr. Harold D. Mahan, Christopher M. Packard, Dr. James F. Parnell, Richard H. Peake, Jr., Forrest S. Romero, Michael D. Spencer, and Robert E. Stewart.

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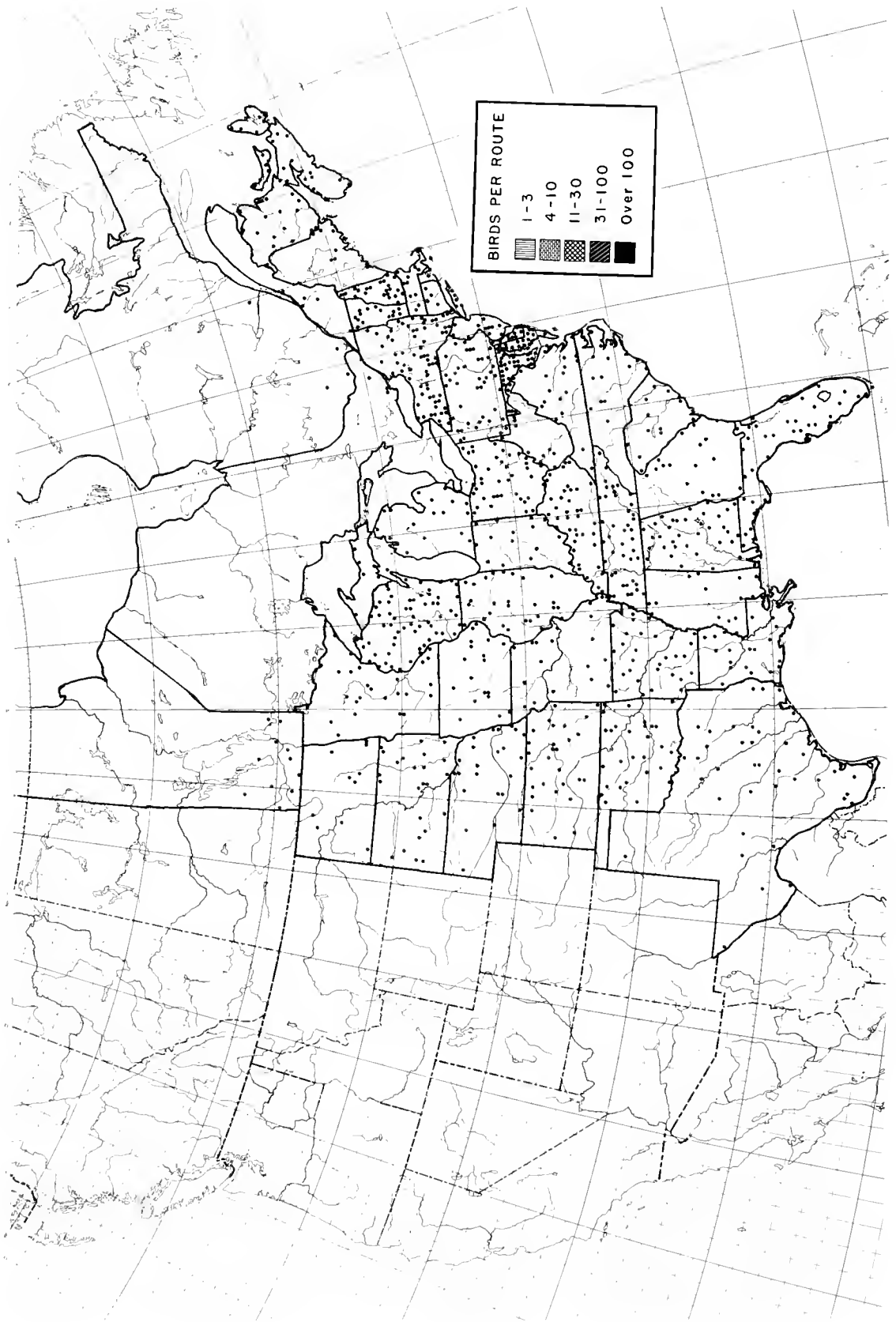


Figure 1.---Distribution of 1967 Breeding Bird Survey routes.

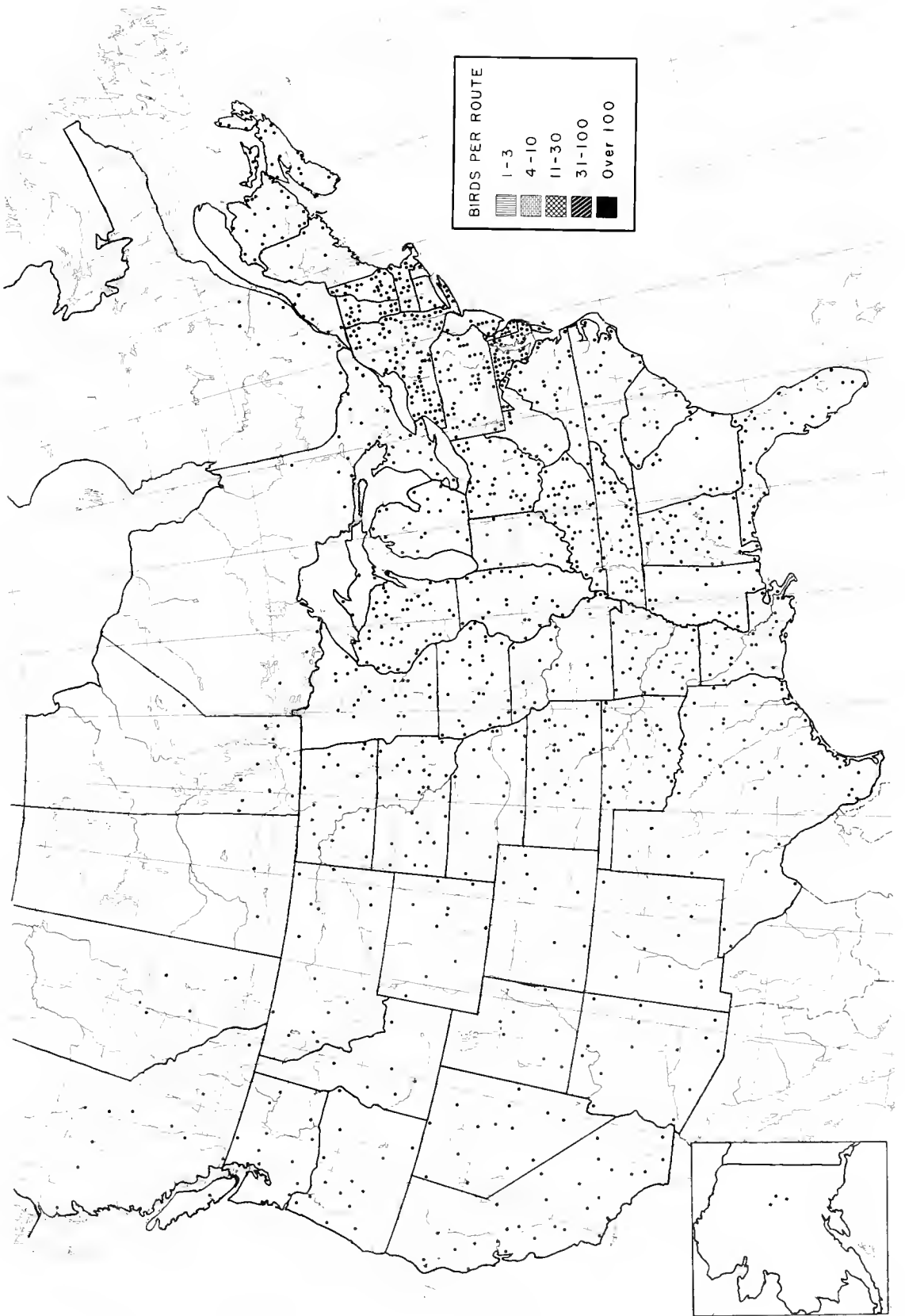


Figure 2.--Distribution of 1968 Breeding Bird Survey routes.

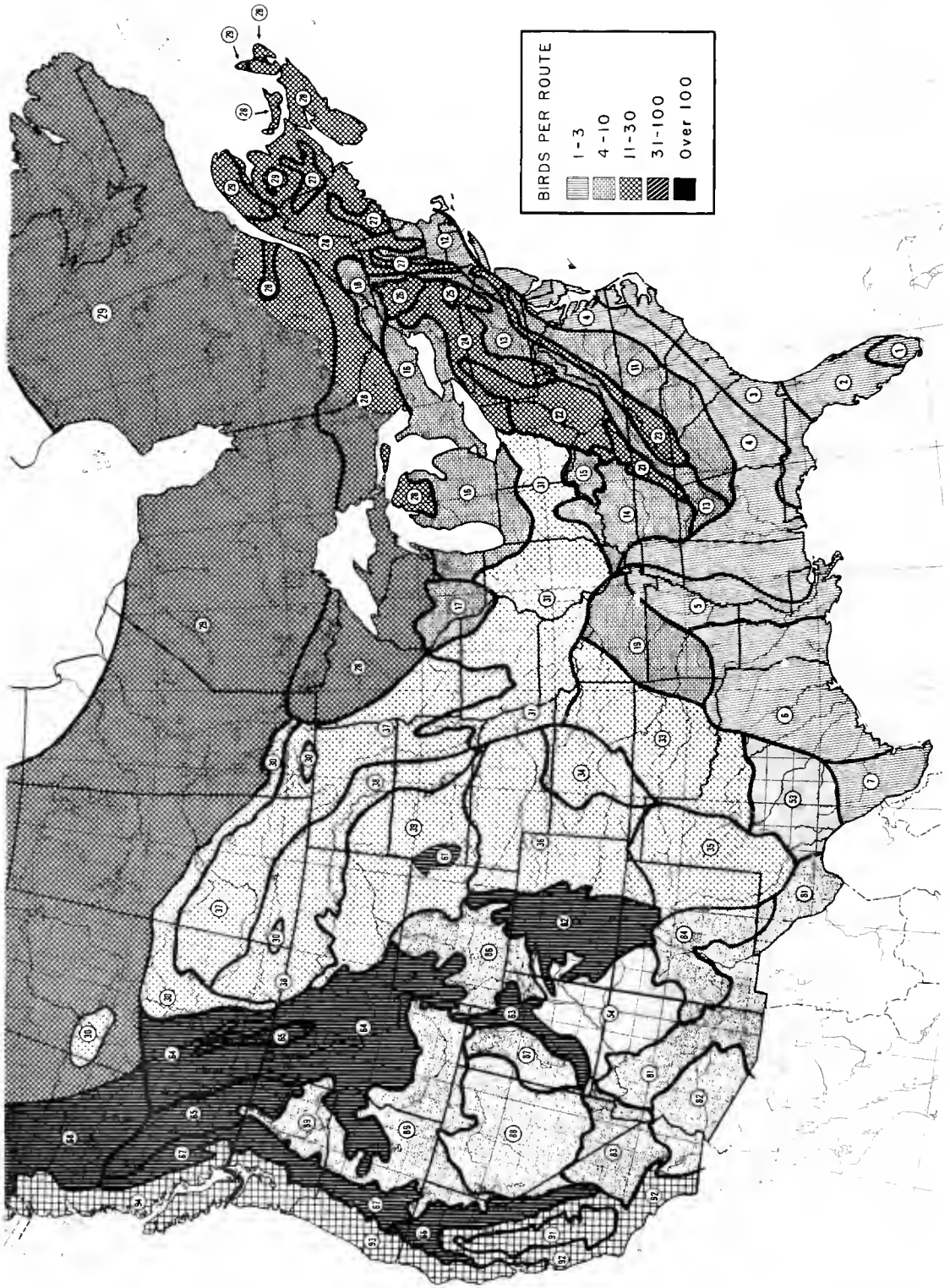


Figure 3.--Breeding Bird Survey stratification map.

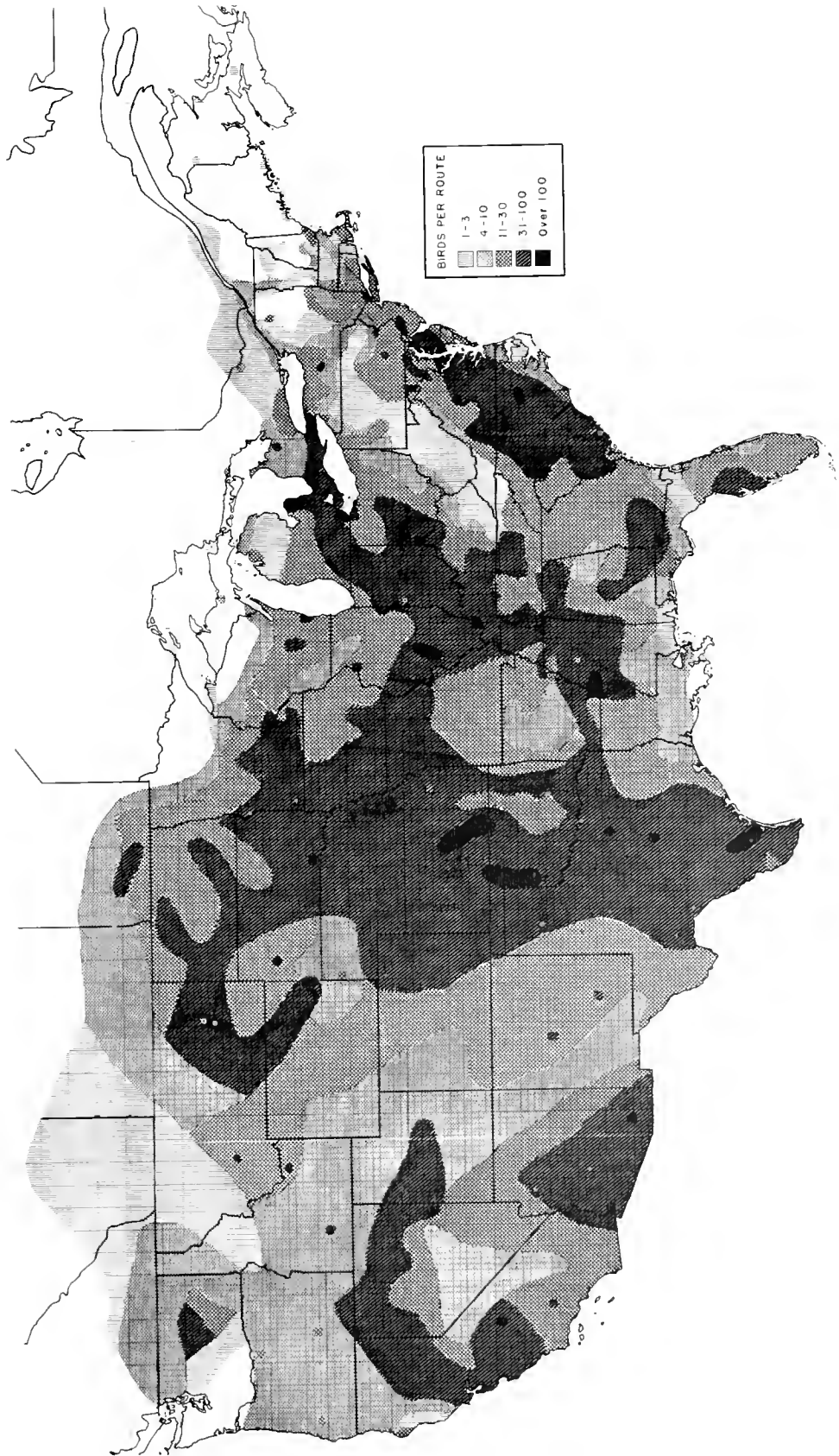


Figure 4.--Mourning Dove breeding distribution, 1968

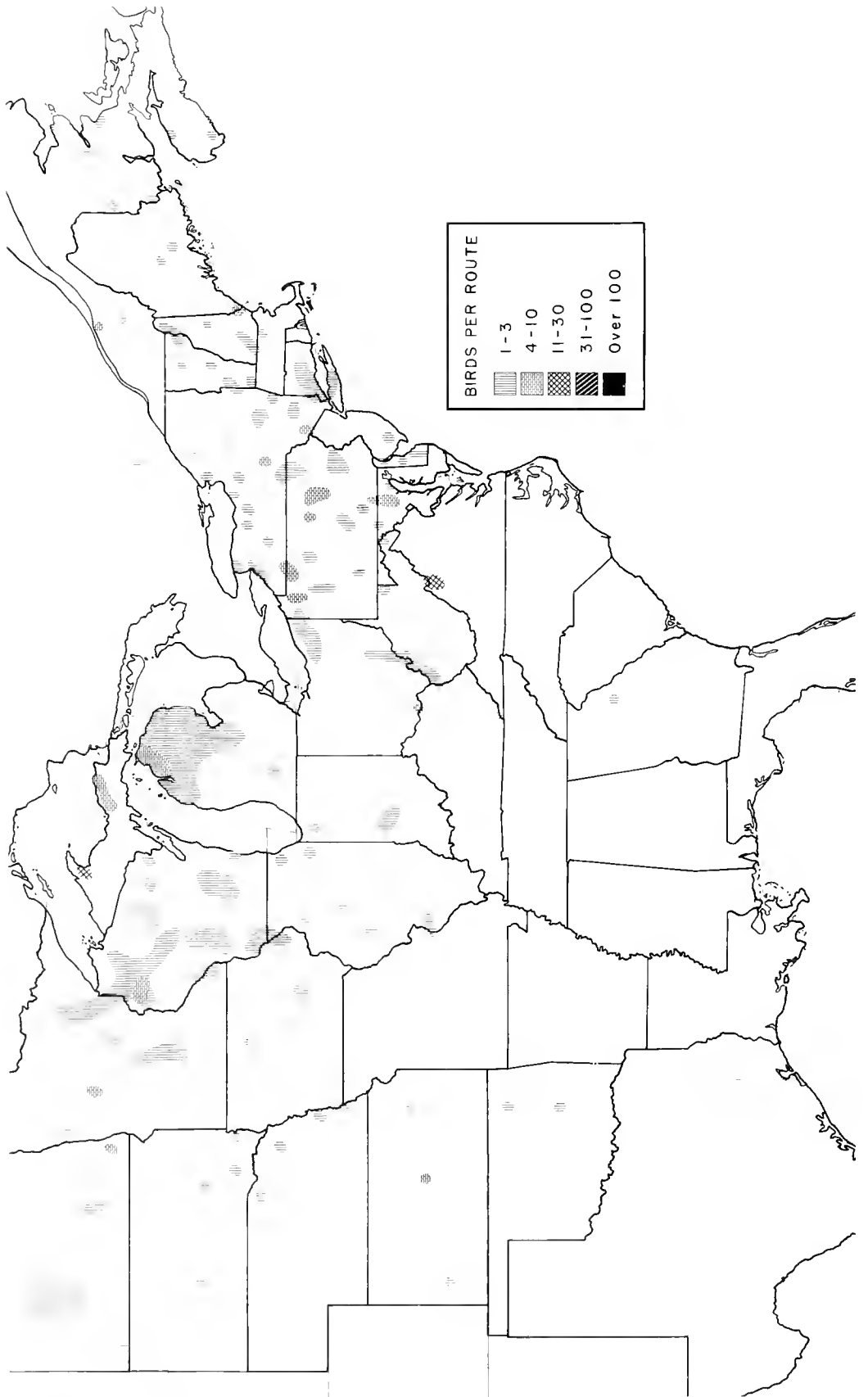


Figure 5.--Black-billed Cuckoo breeding distribution, 1967



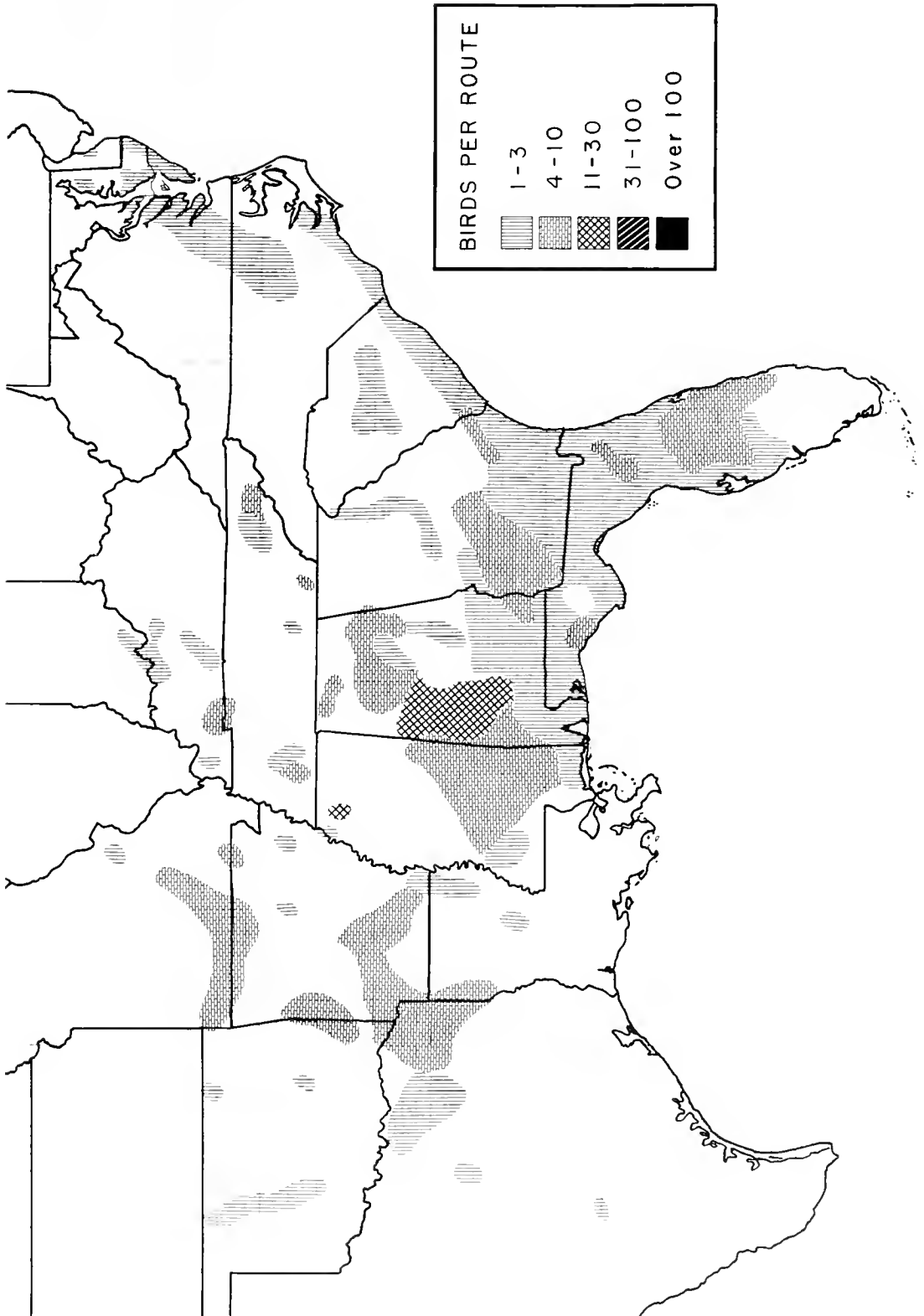


Figure 6.--Chuck-will's-widow breeding distribution, 1967

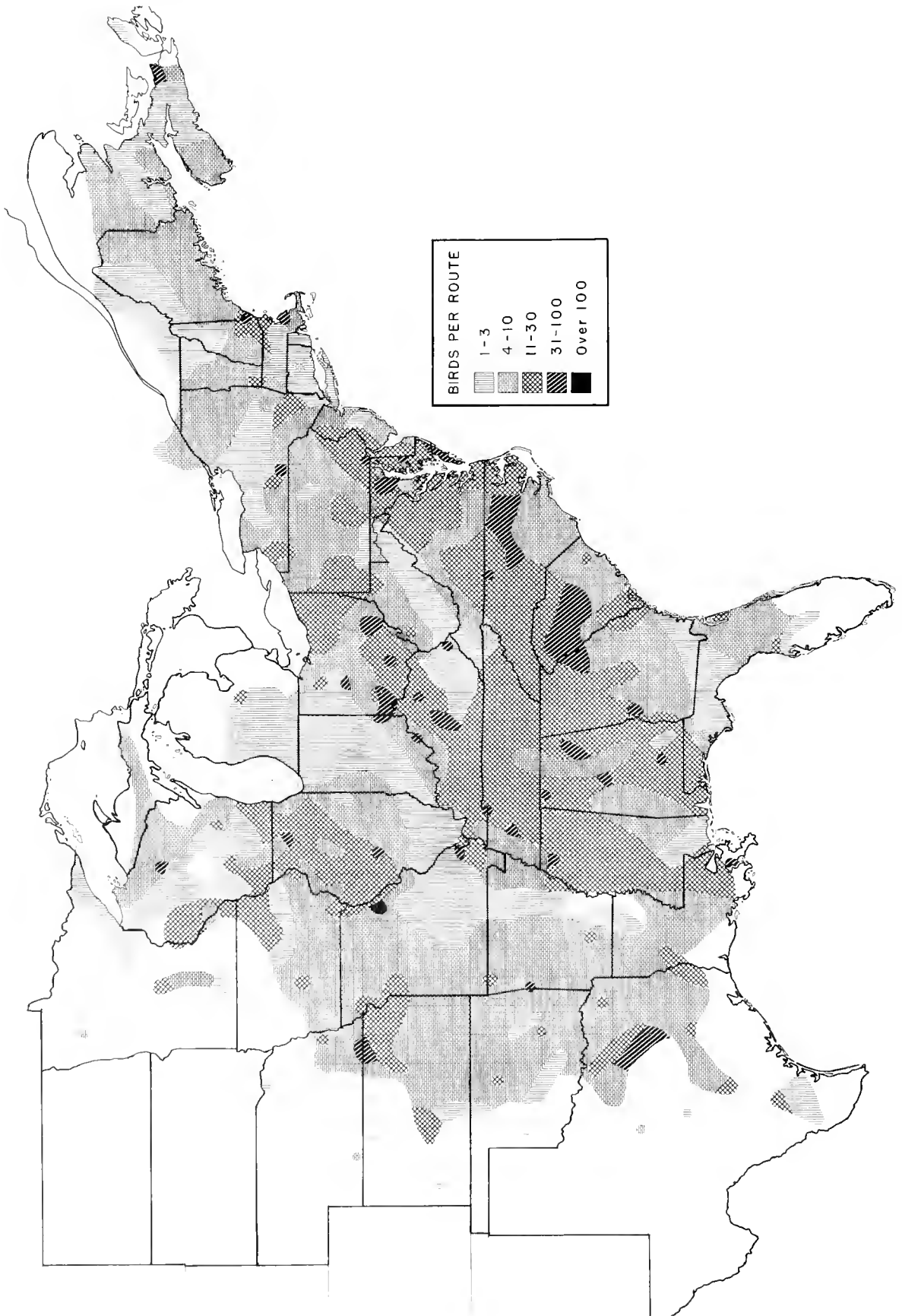


Figure 7.--Chimney Swift breeding distribution, 1967

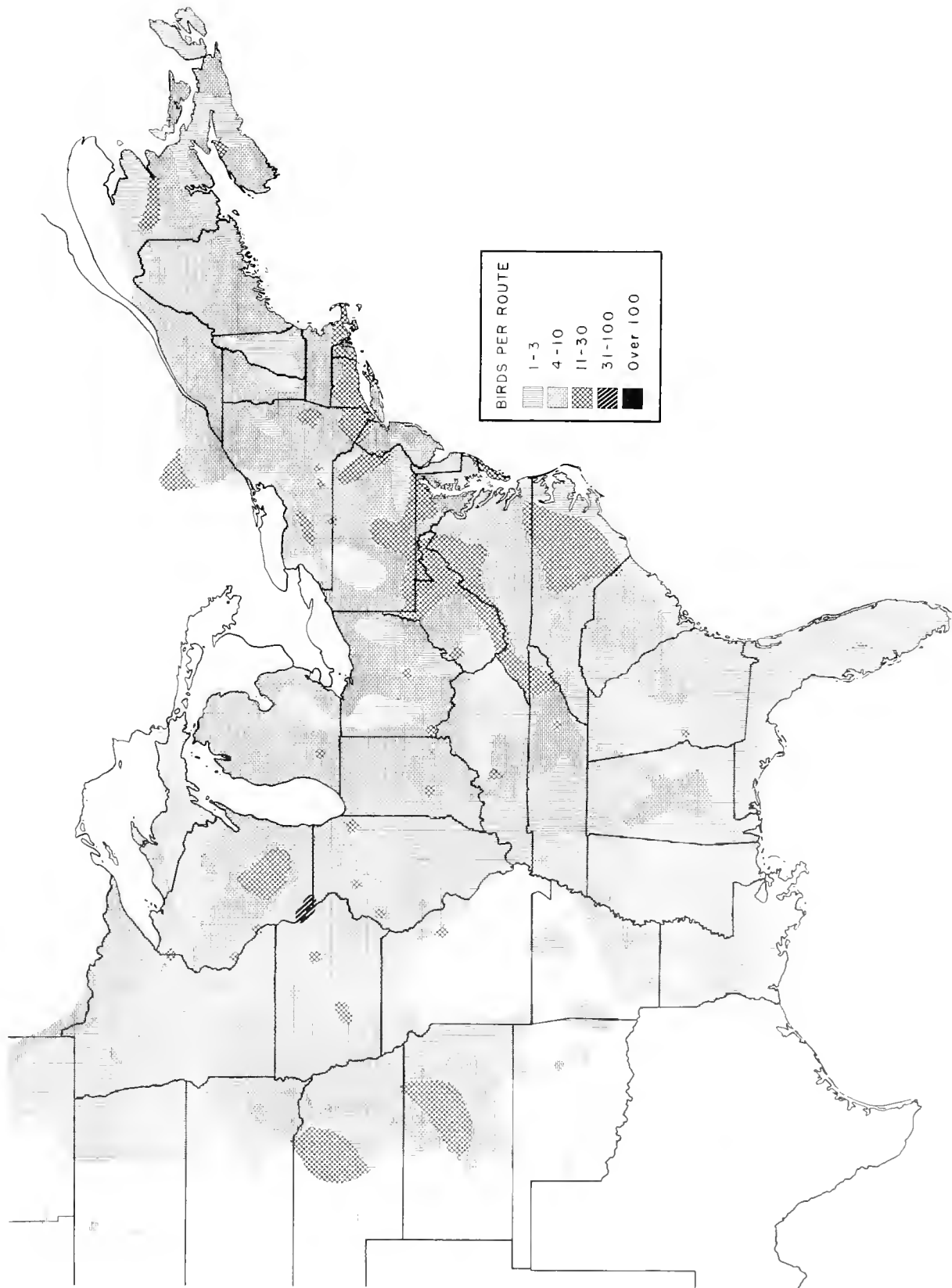


Figure 8.--Yellow-shafted Flicker breeding distribution, 1967

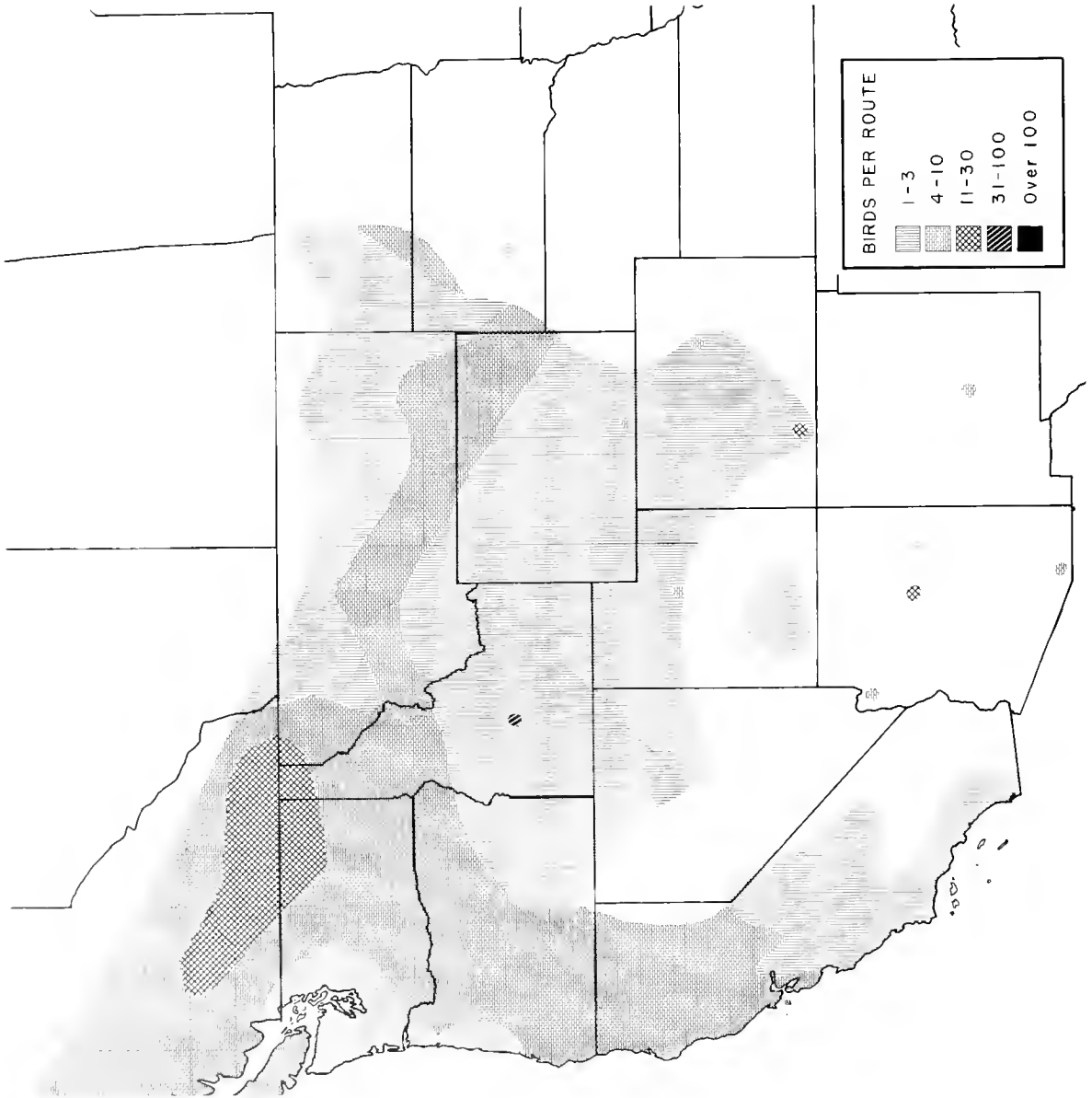


Figure 9.--Red-shafted Flicker breeding distribution, 1968.

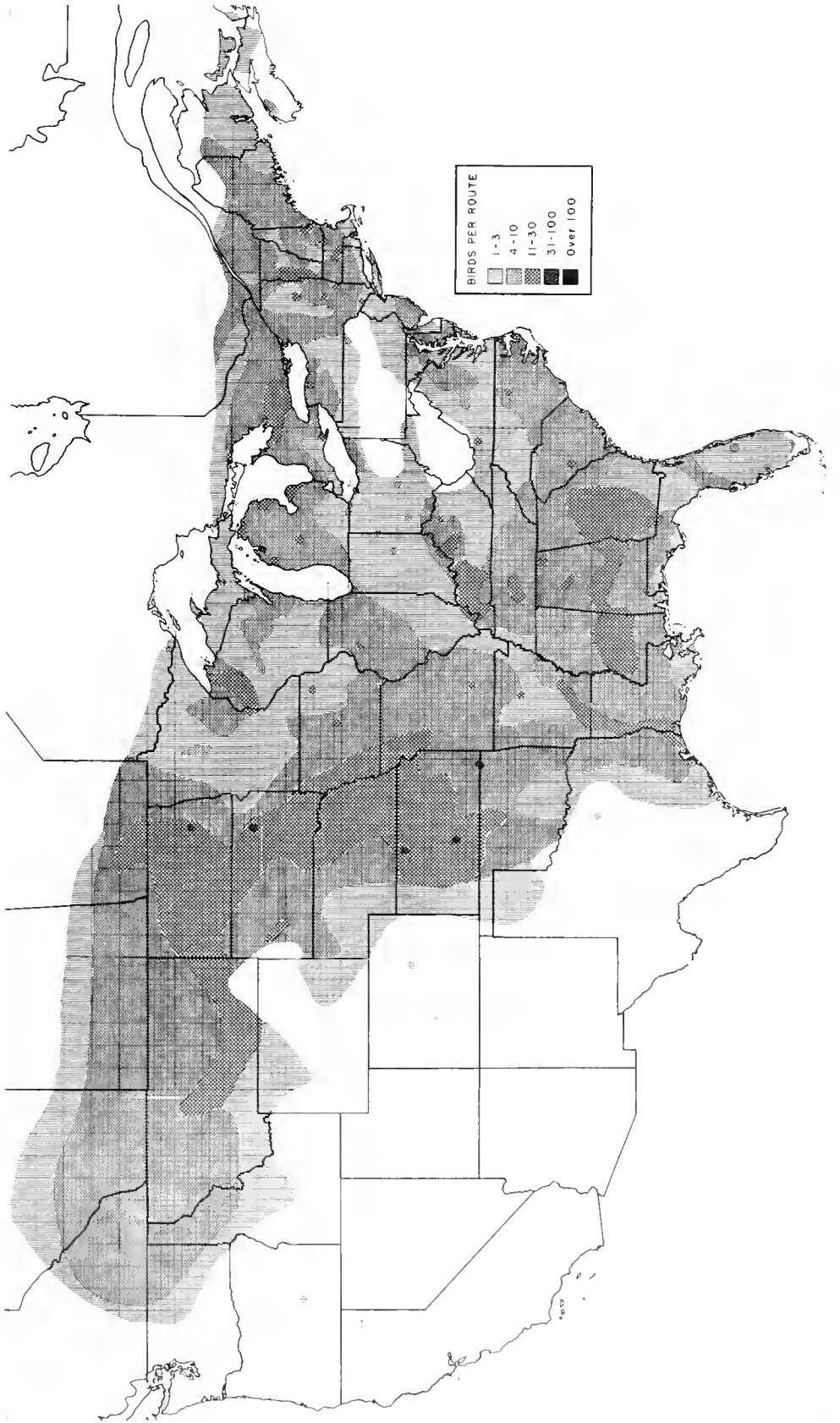


Figure 10.--Eastern Kingbird breeding distribution, 1968

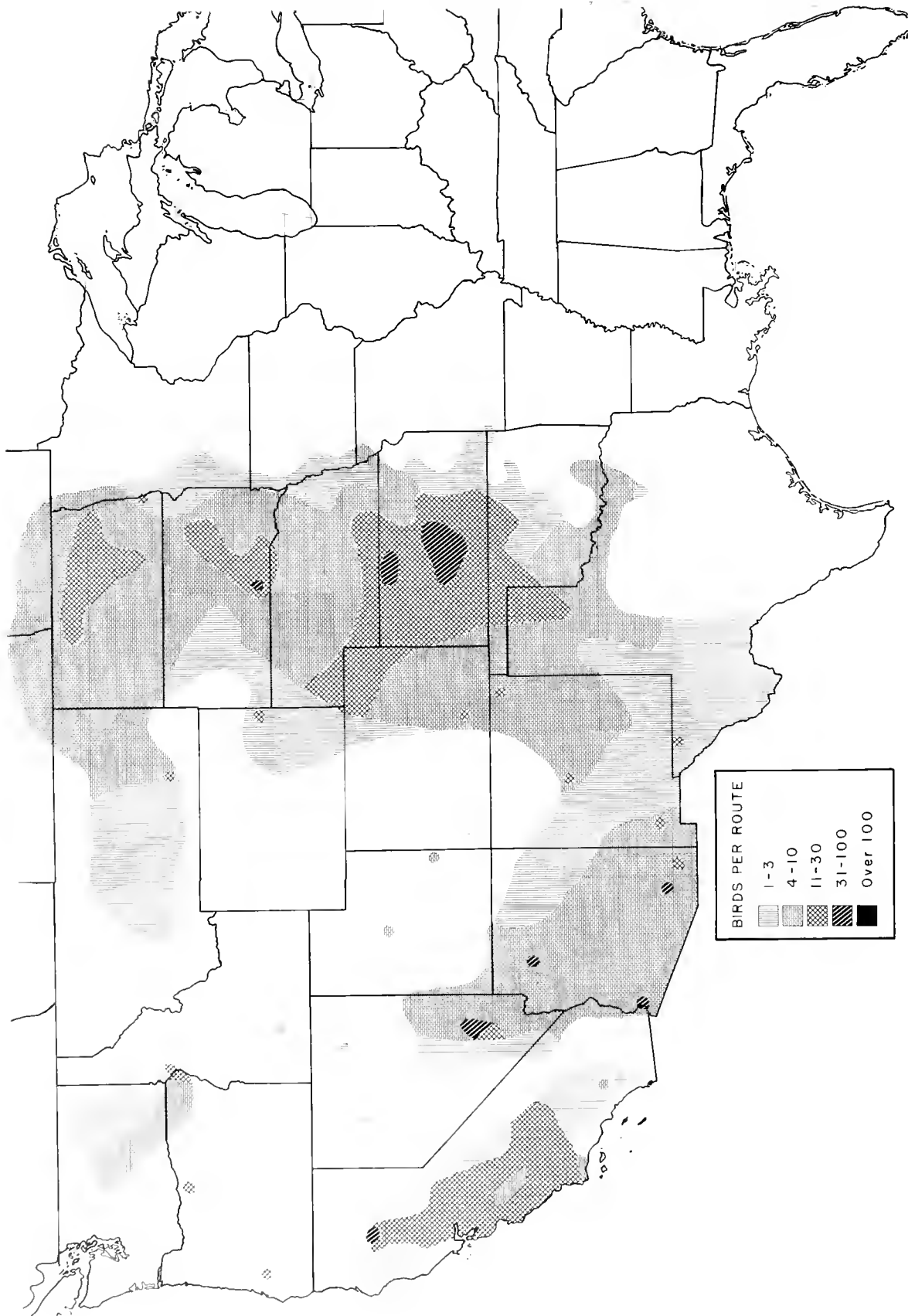


Figure 11.--Western Kingbird breeding distribution, 1968

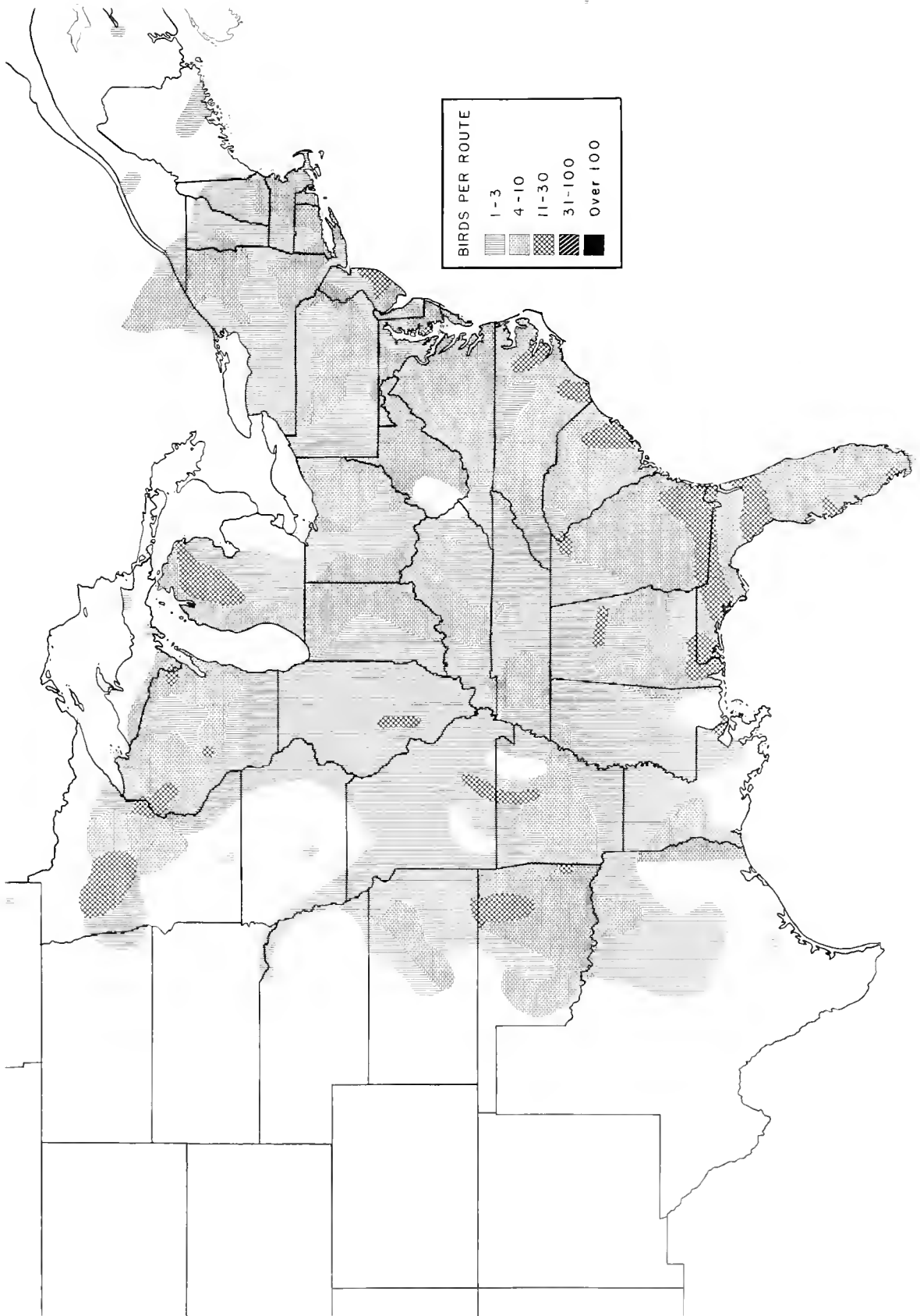


Figure 12.--Great Crested Flycatcher breeding distribution, 1967

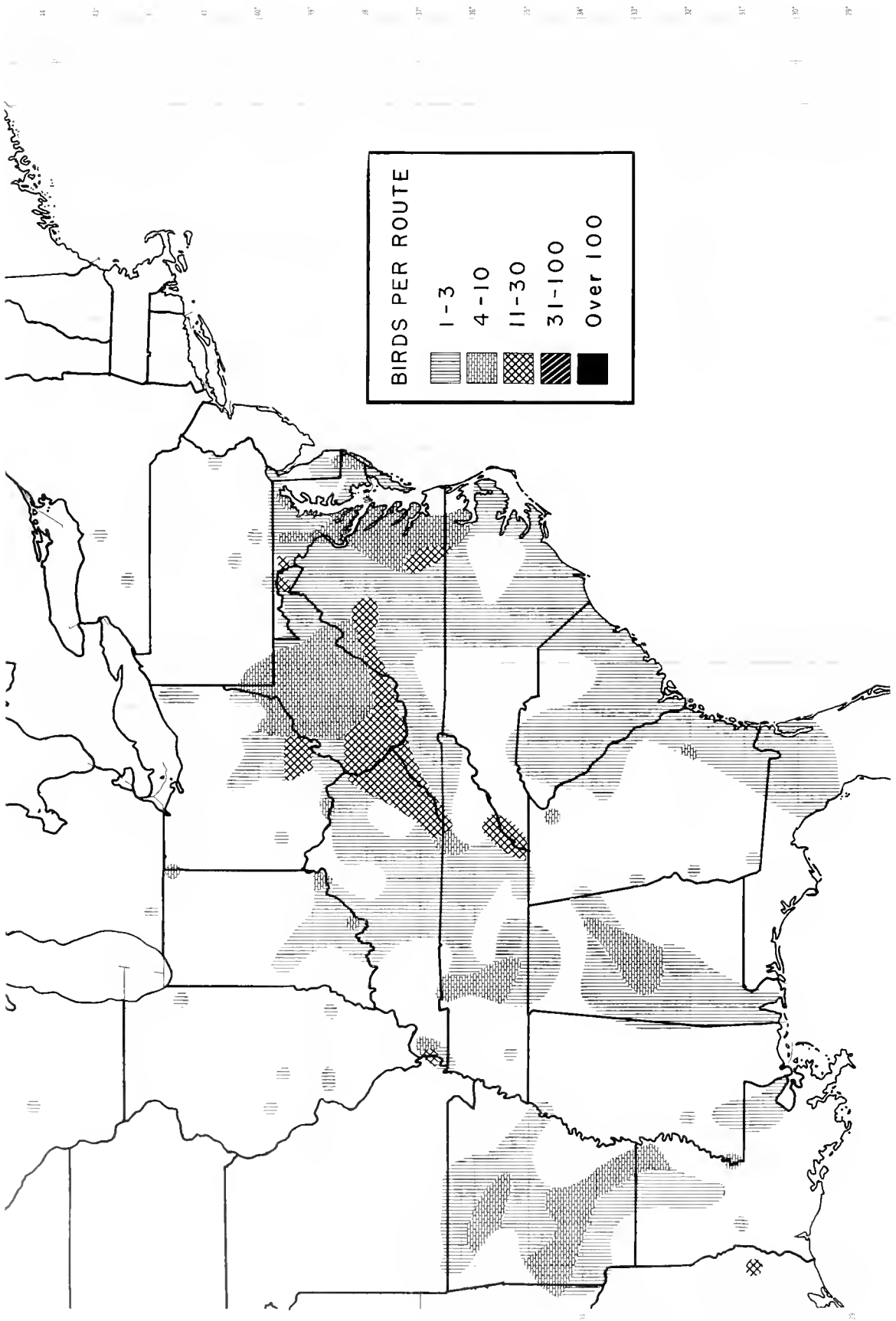


Figure 13.--Acadian Flycatcher breeding distribution, 1967



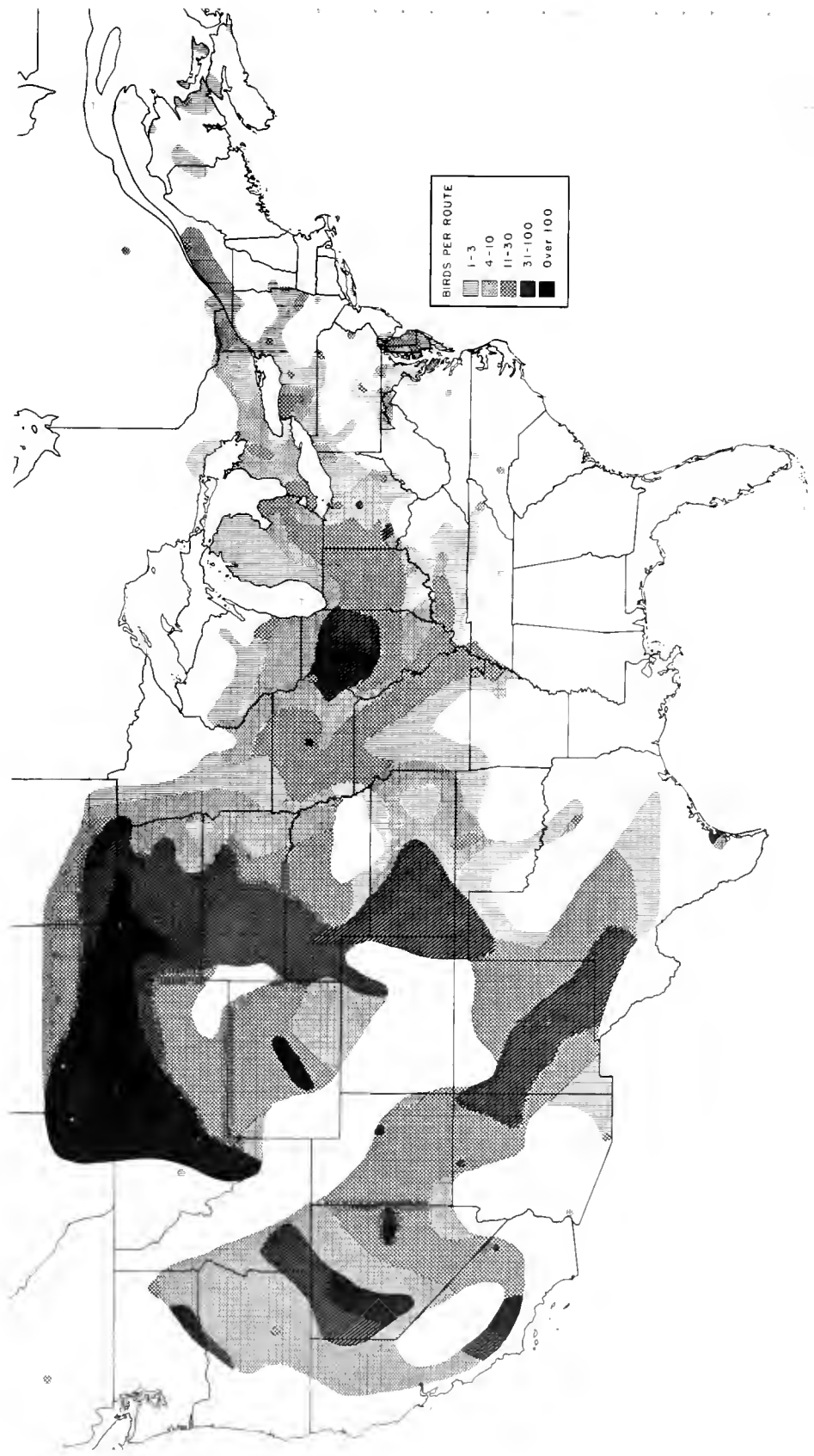


Figure 14.--Horned Lark breeding distribution, 1968

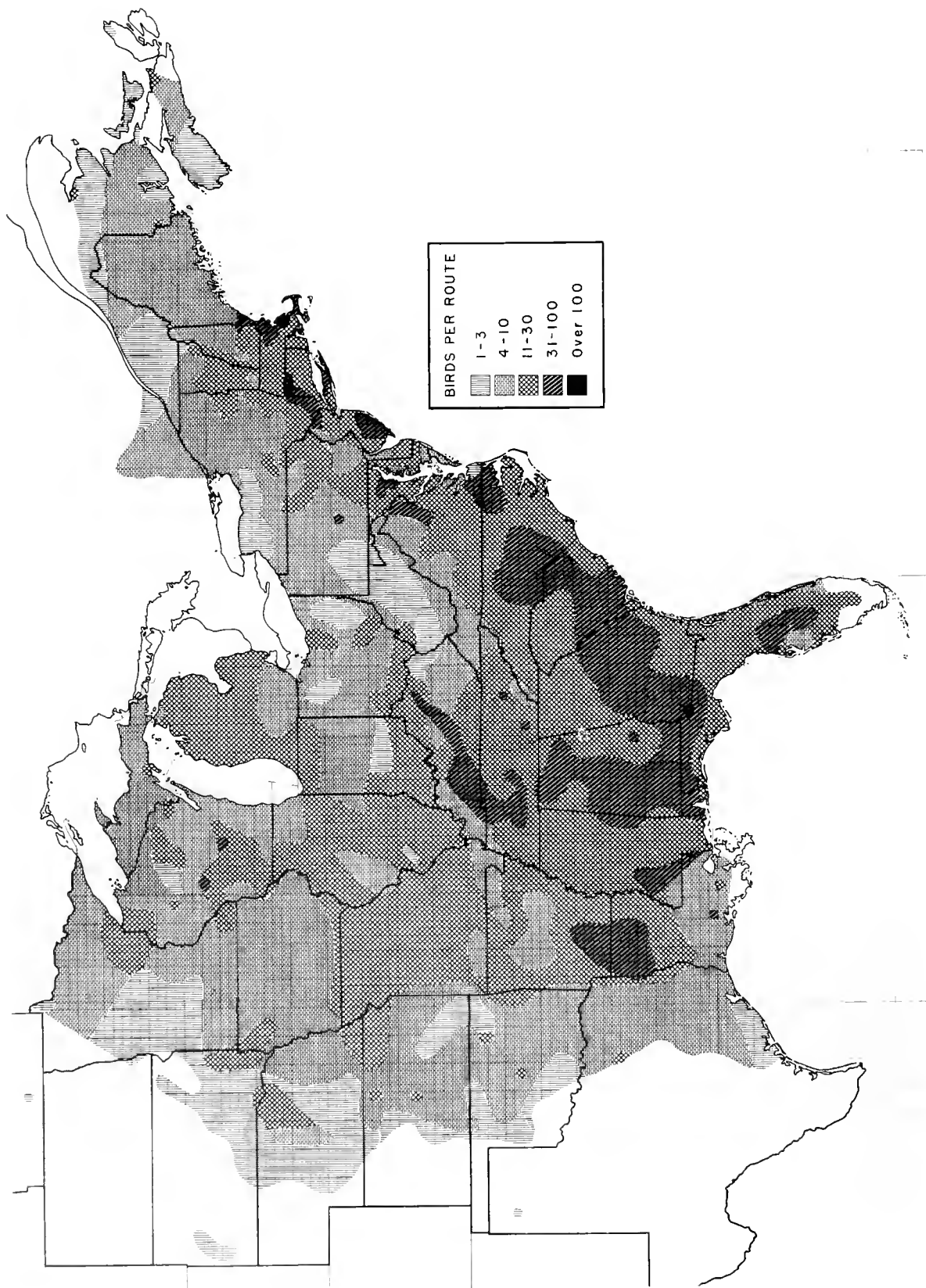


Figure 15.--Blue Jay breeding distribution, 1967

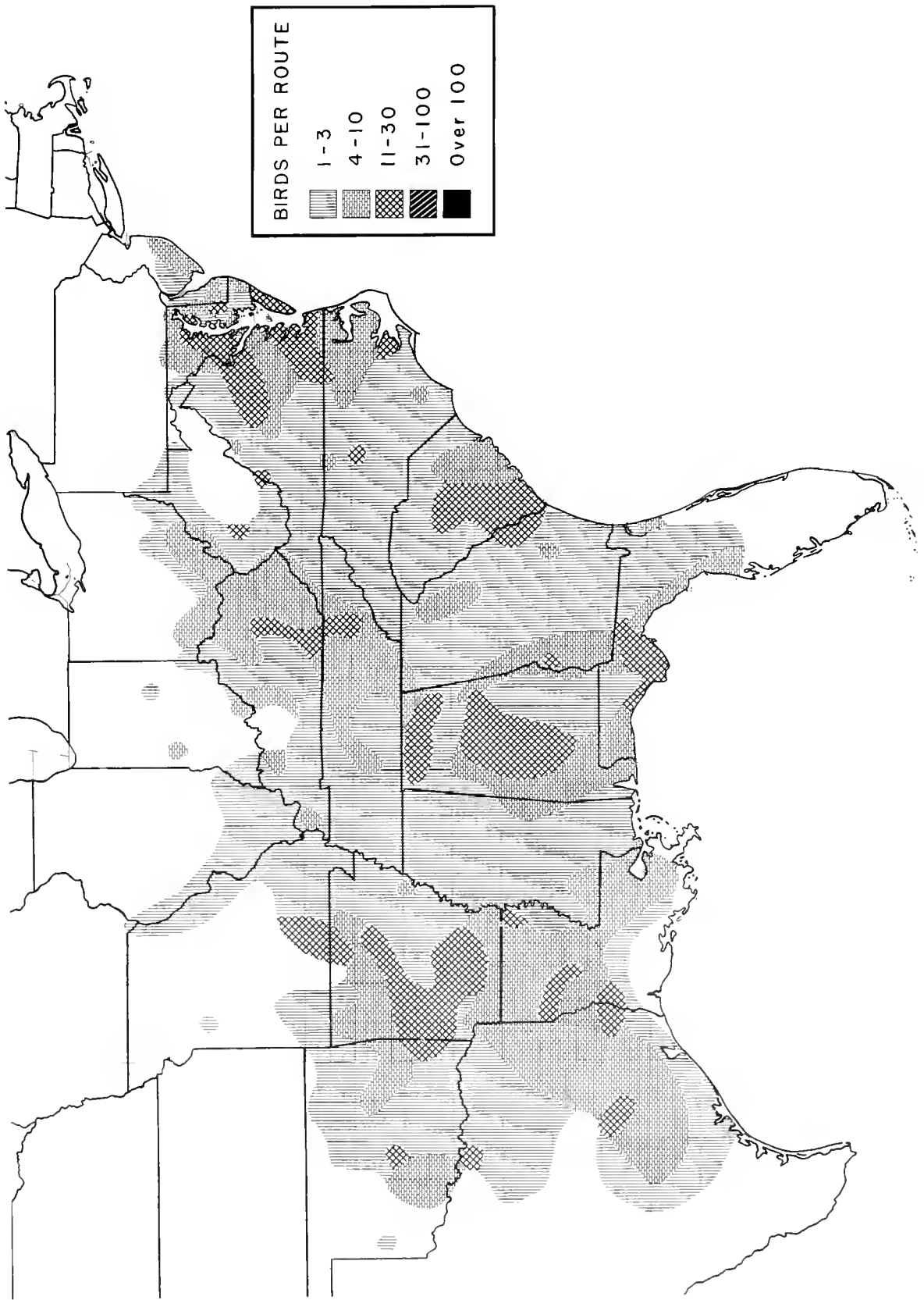


Figure 16.--Carolina Chickadee breeding distribution, 1967.

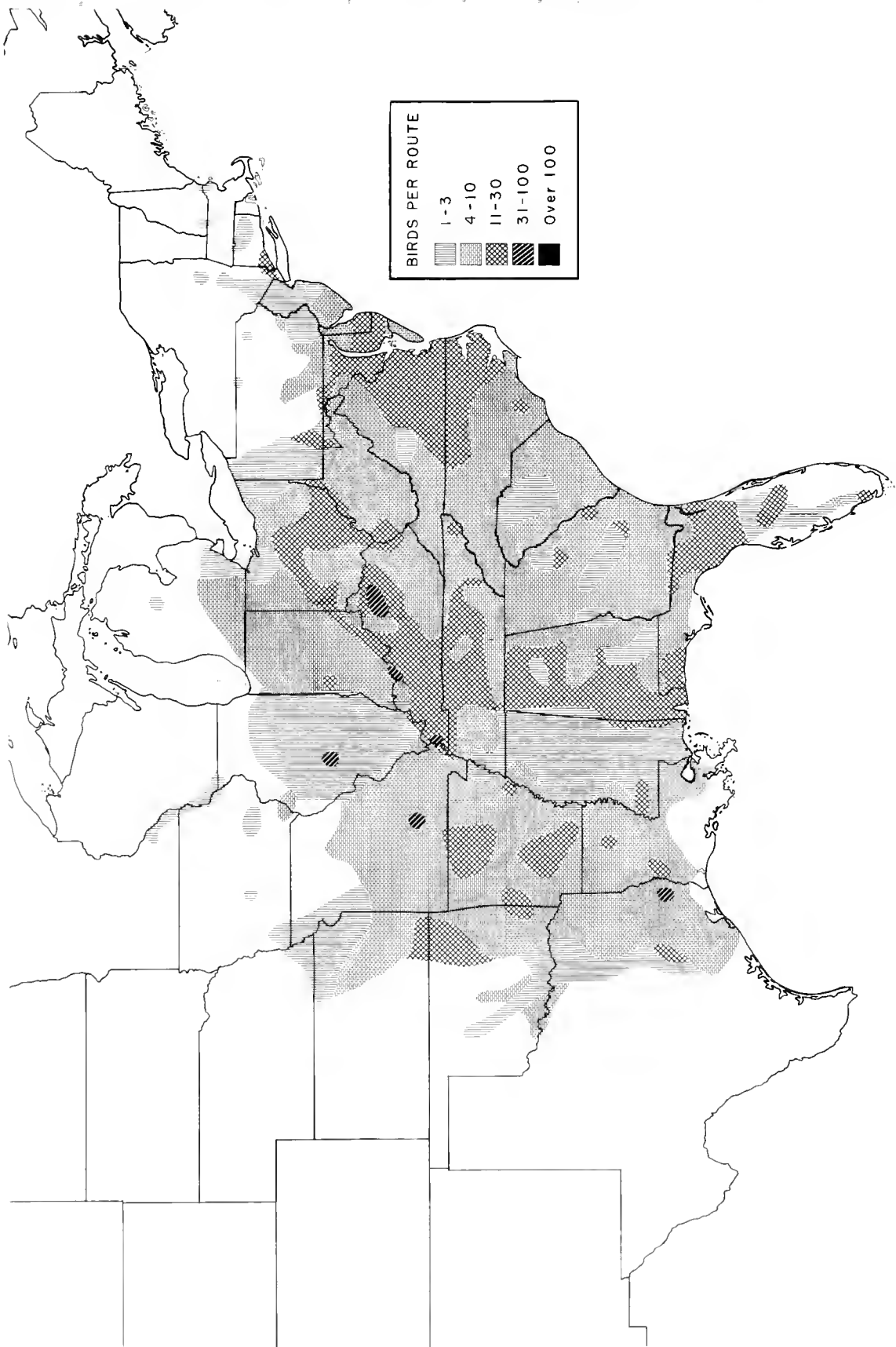


Figure 17.--Tufted Titmouse breeding distribution, 1967.

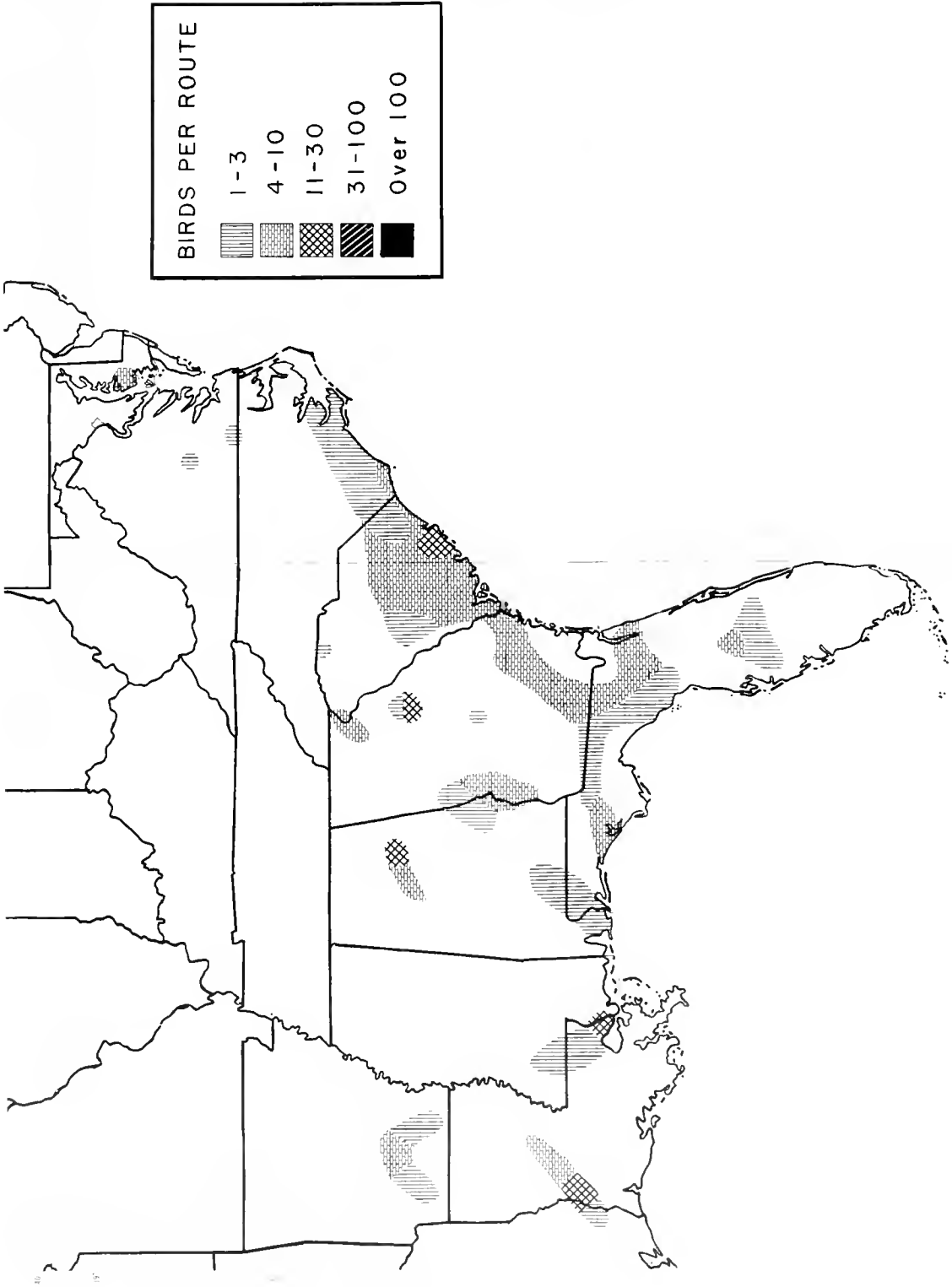


Figure 18.---Brown-headed Nuthatch breeding distribution, 1967.

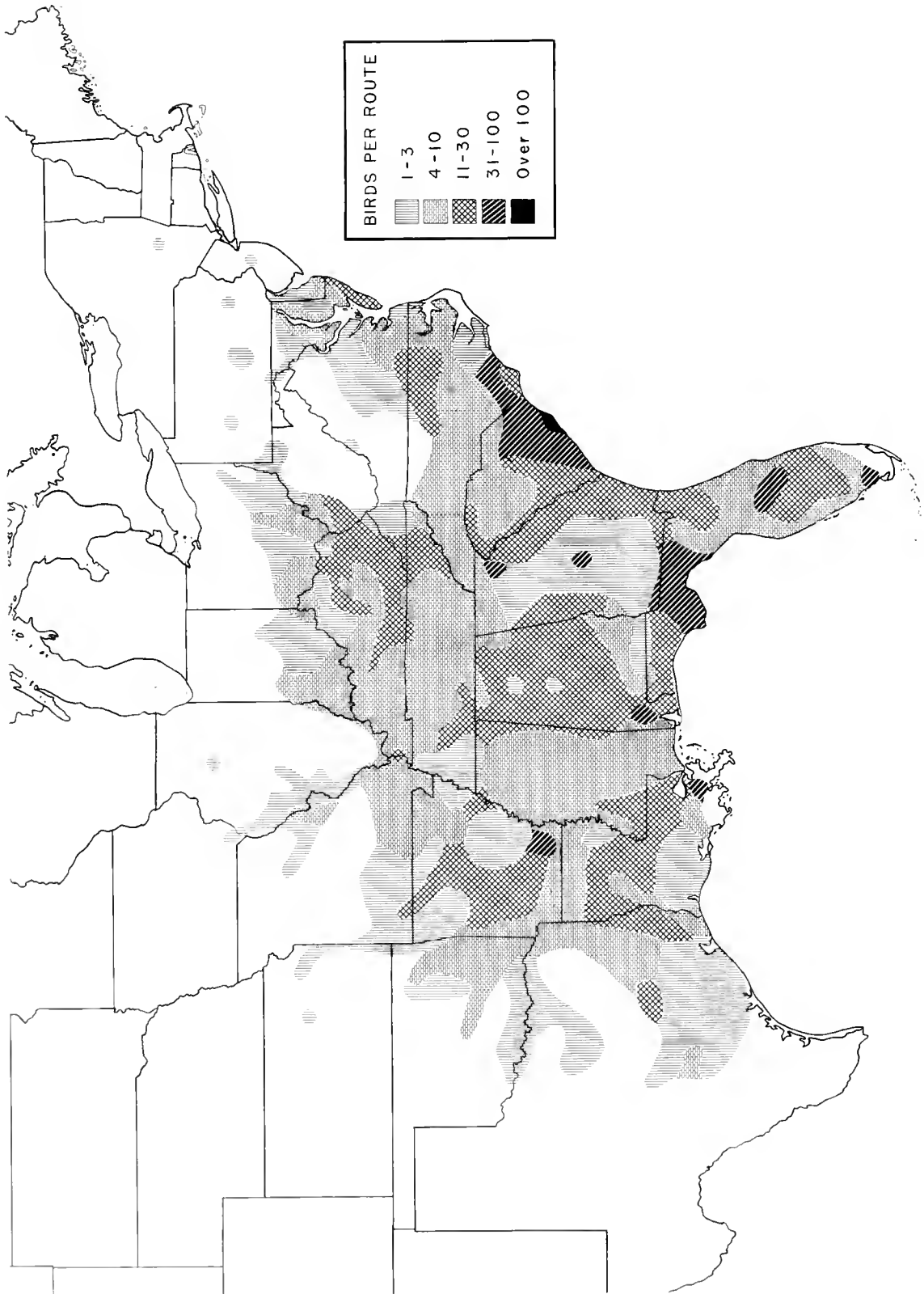


Figure 19.--Carolina Wren breeding distribution, 1967

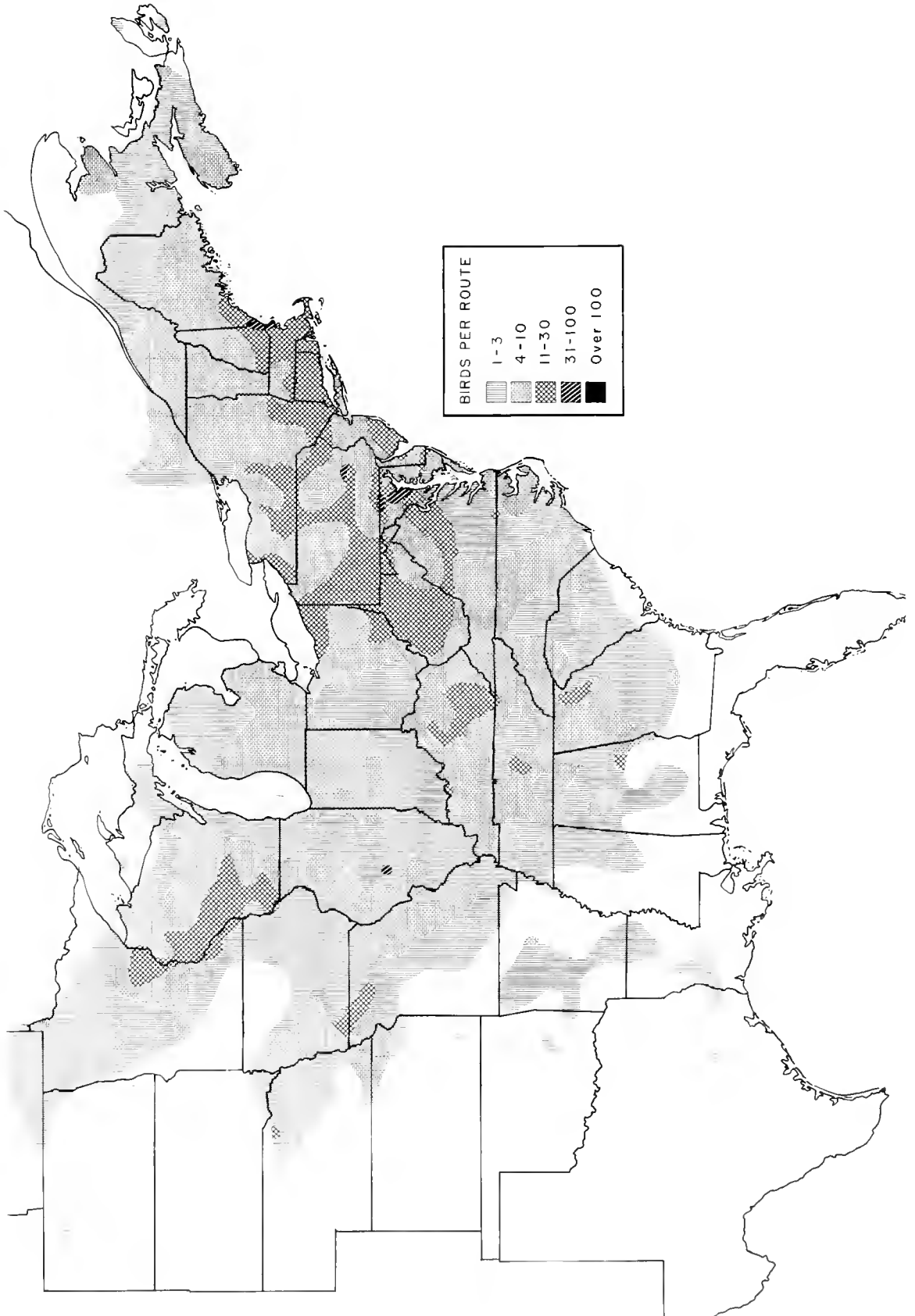


Figure 20.--Catbird breeding distribution, 1967

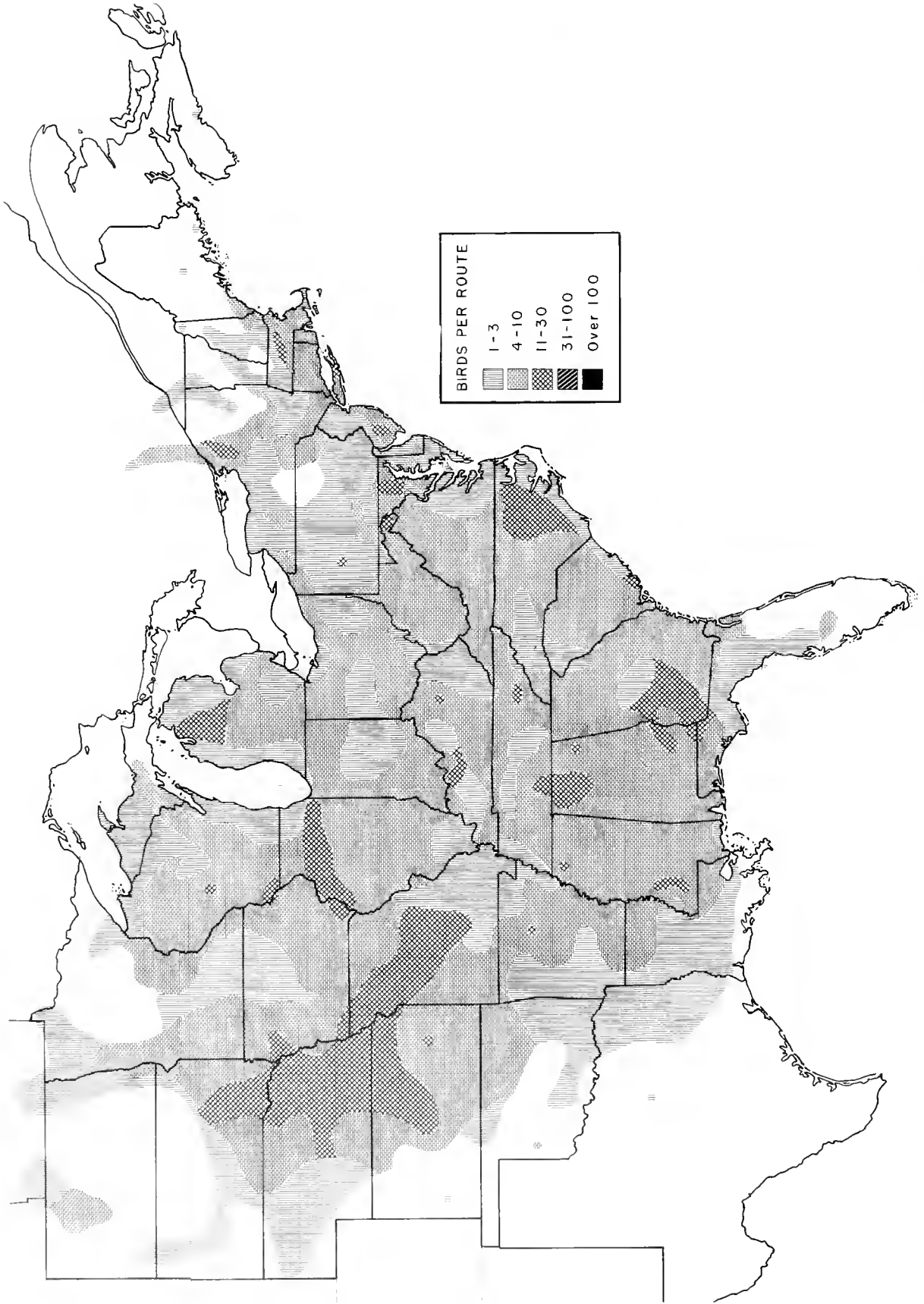


Figure 21.--Brown Thrasher breeding distribution, 1967



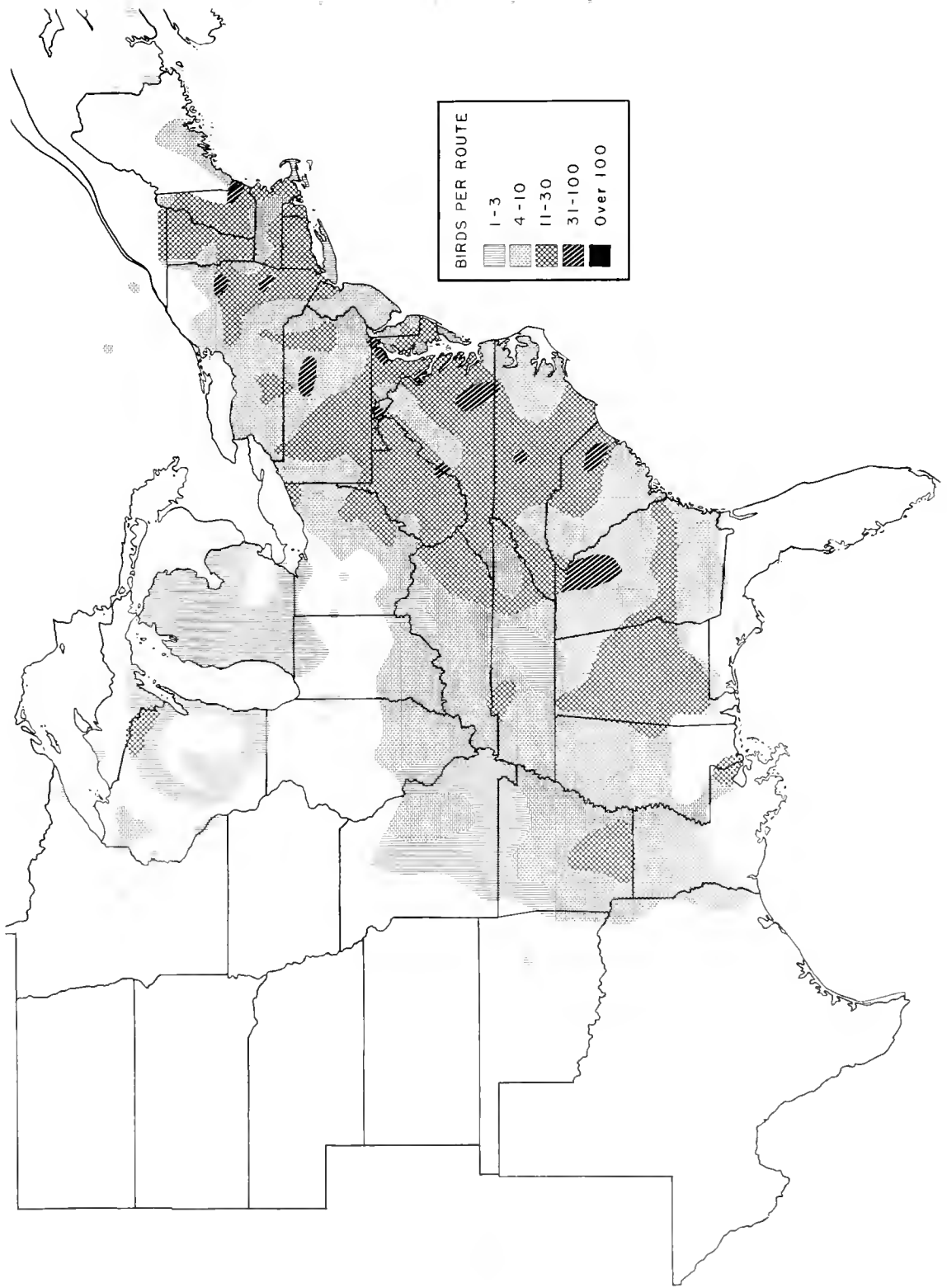


Figure 22.--Wood Thrush breeding distribution, 1967

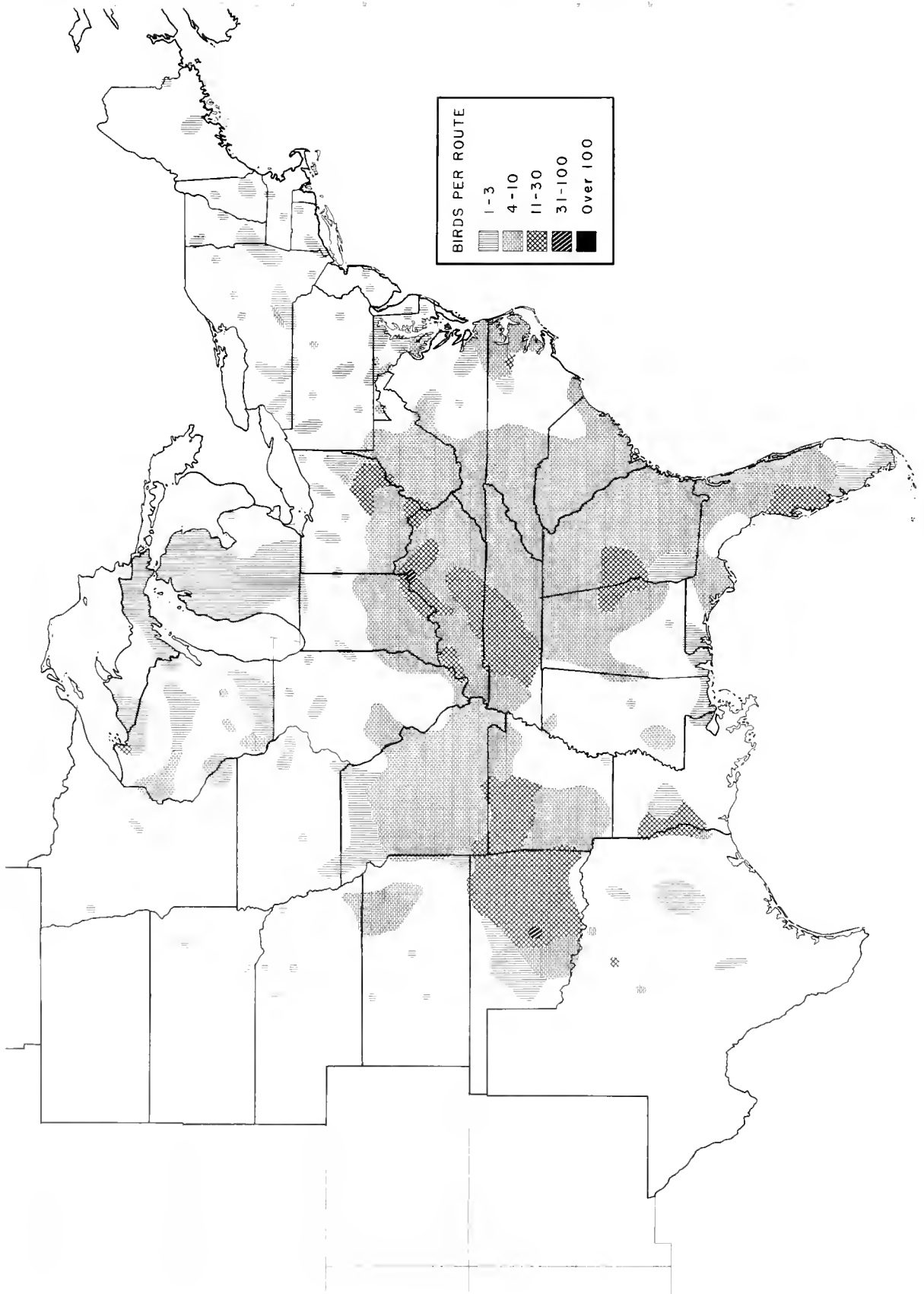


Figure 23.---Eastern Bluebird breeding distribution, 1967

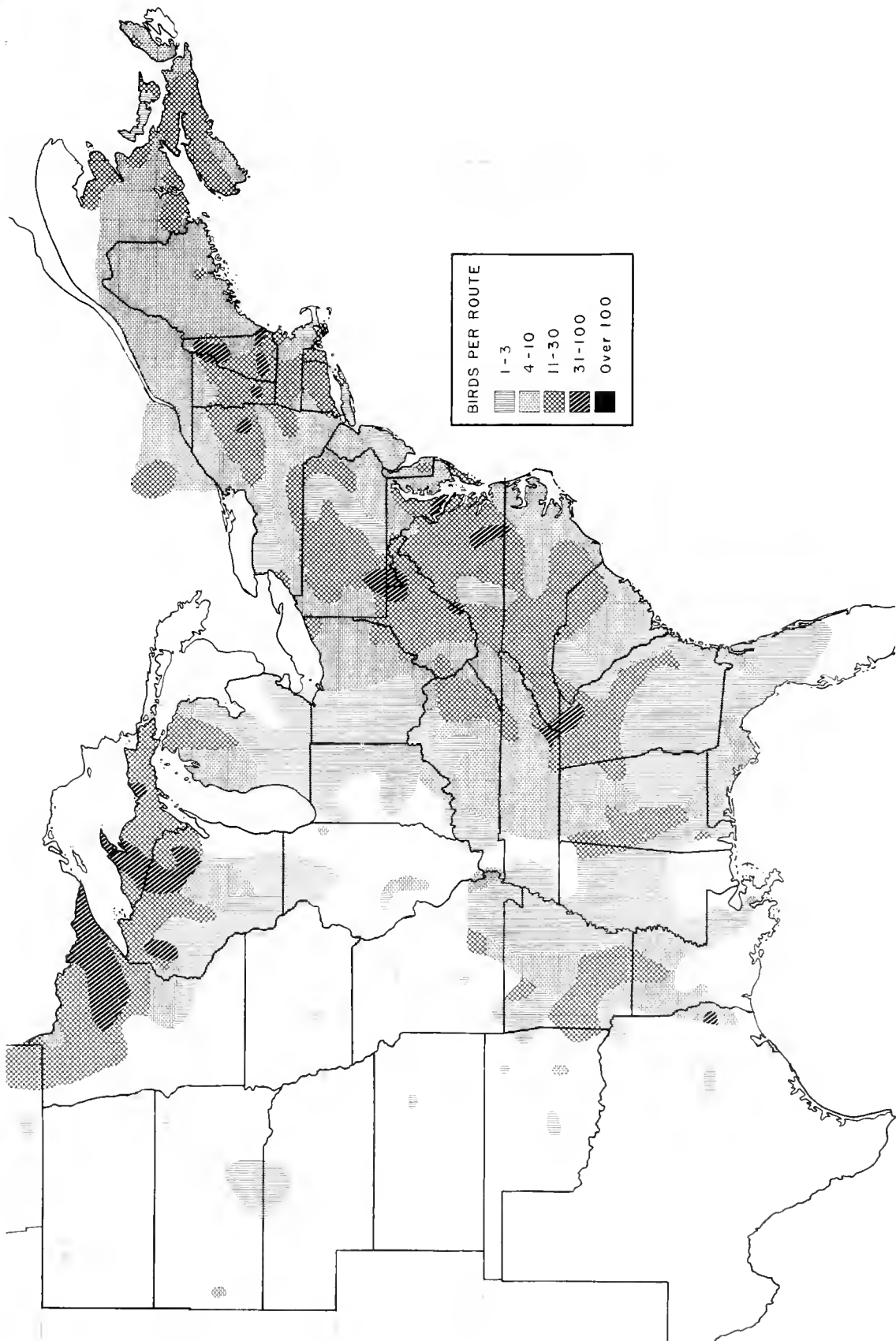


Figure 24.---Red-eyed Vireo breeding distribution, 1967

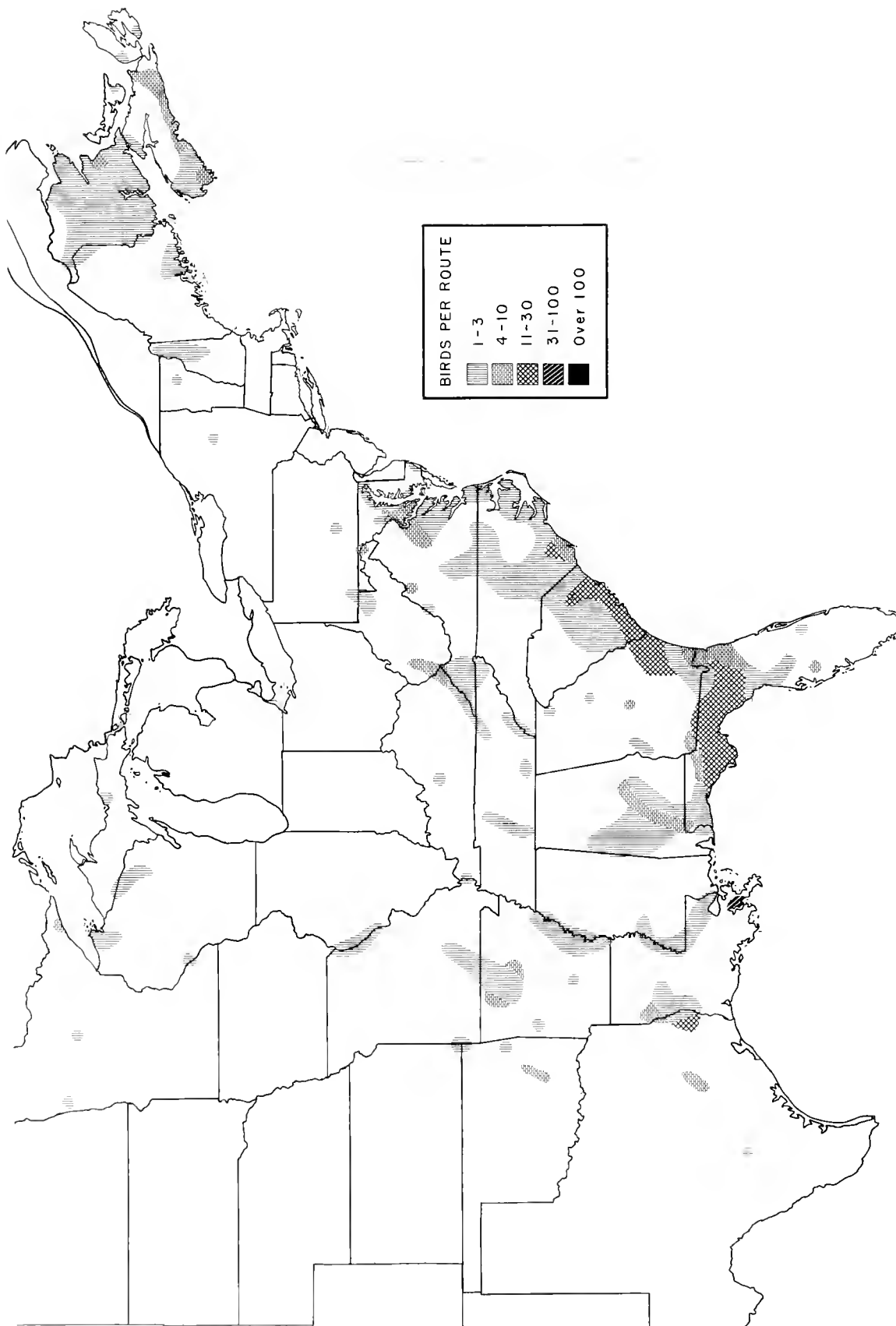


Figure 25.--Parula Warbler breeding distribution, 1967

42 41 40 39 38 37 36 35 34 33 32 31 30 29 28

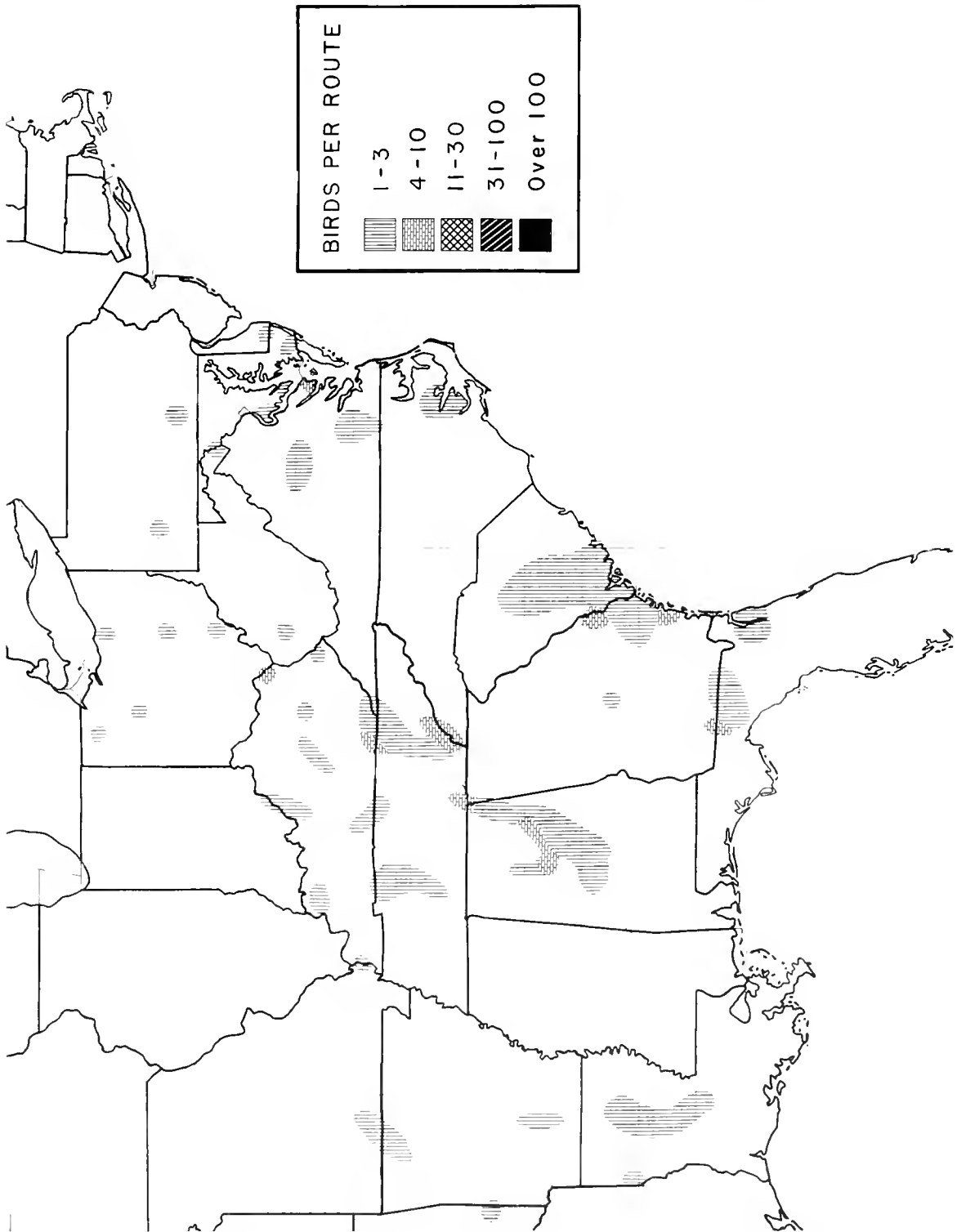


Figure 26.---Yellow-throated Warbler breeding distribution, 1967

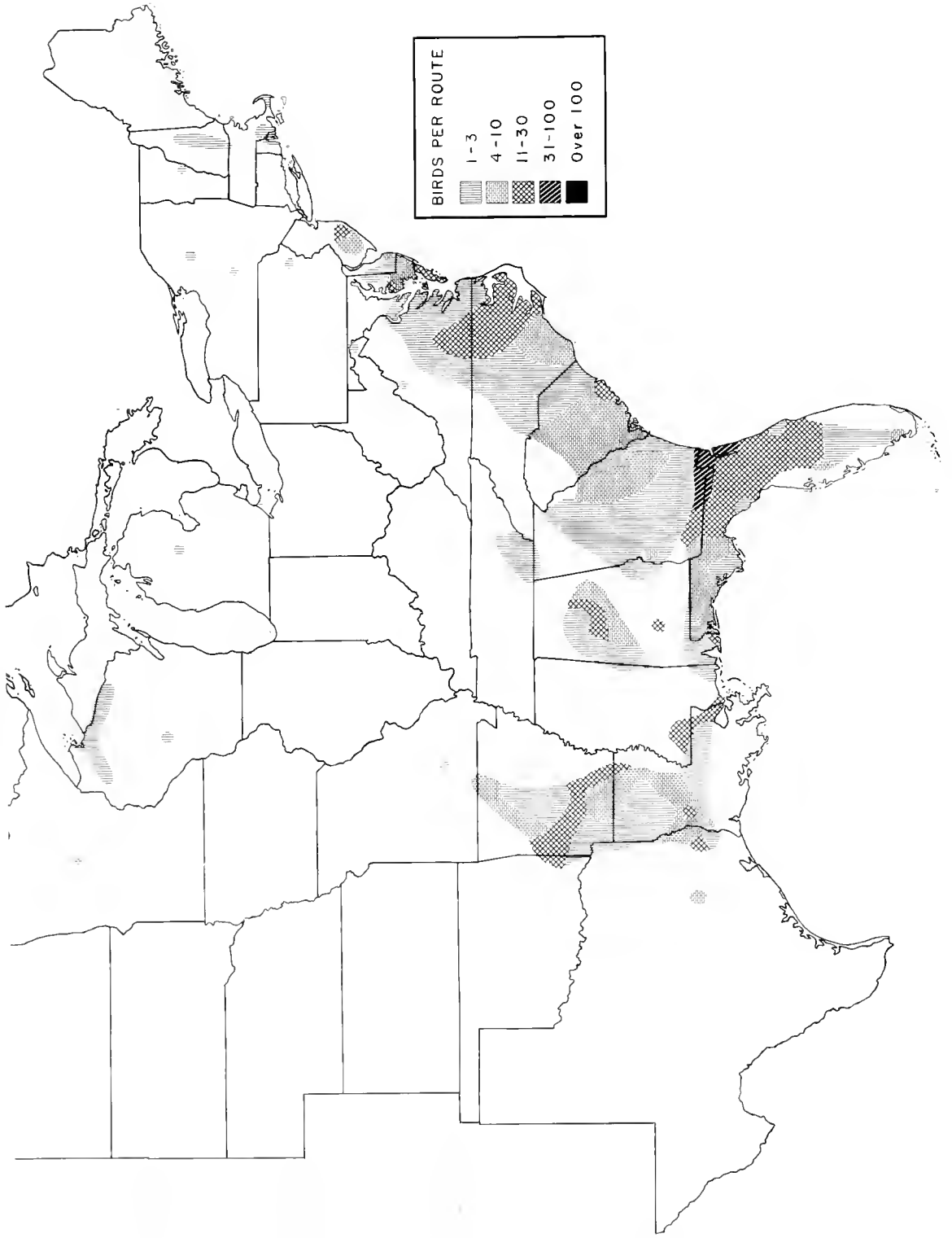


Figure 27.--Pine Warbler breeding distribution, 1967

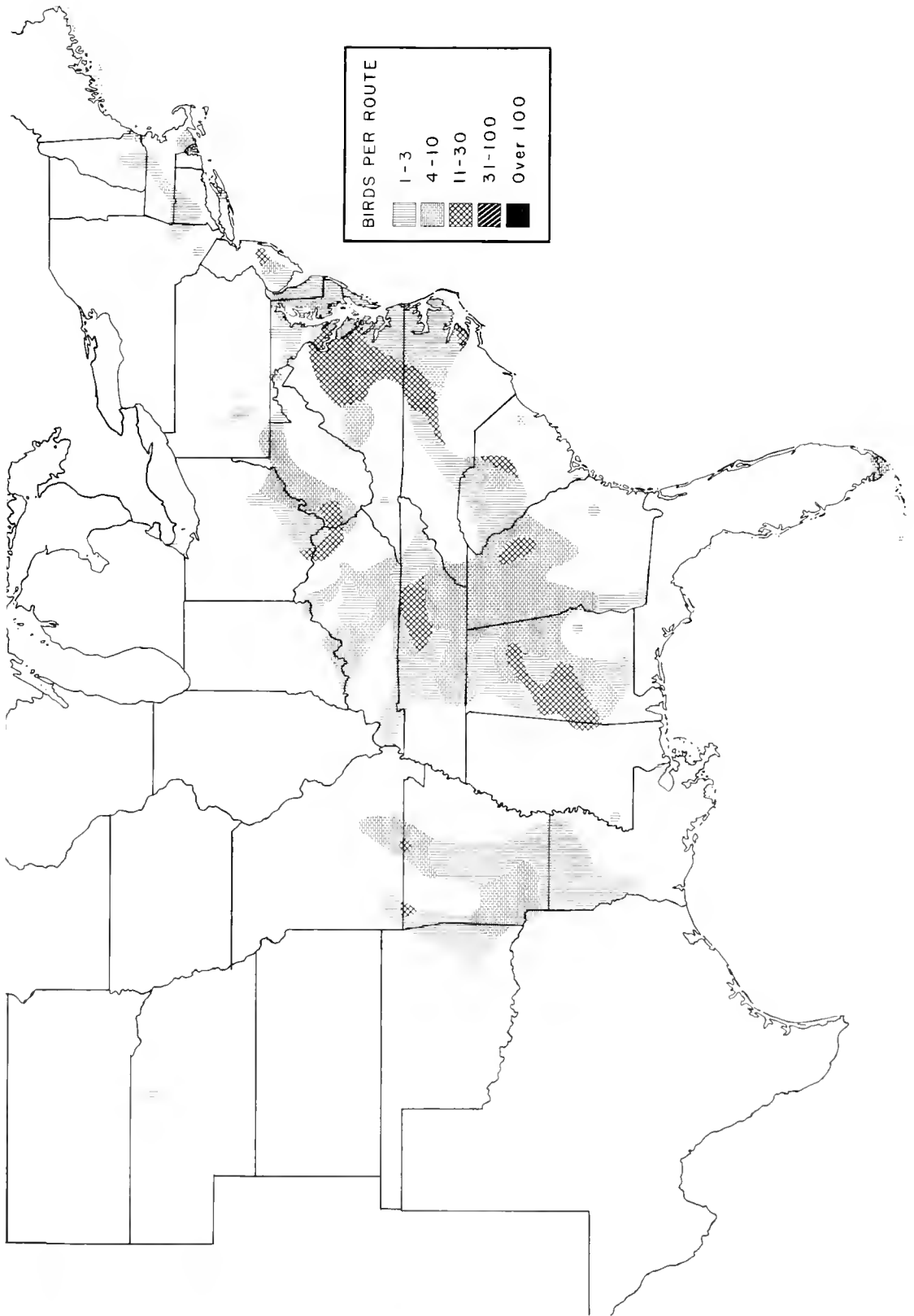


Figure 28.--Prairie Warbler breeding distribution, 1967

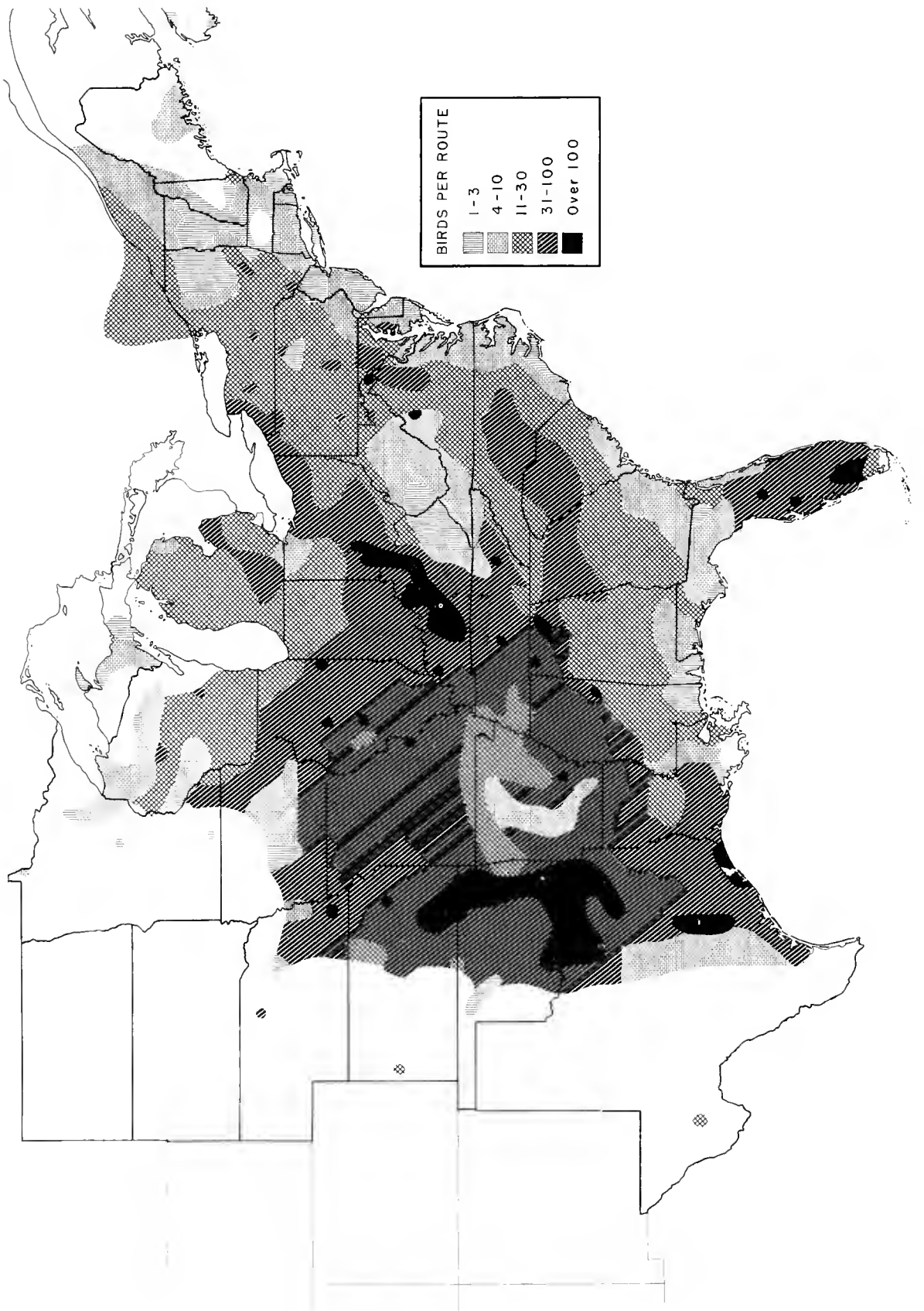


Figure 29.--Eastern Meadowlark breeding distribution, 1967



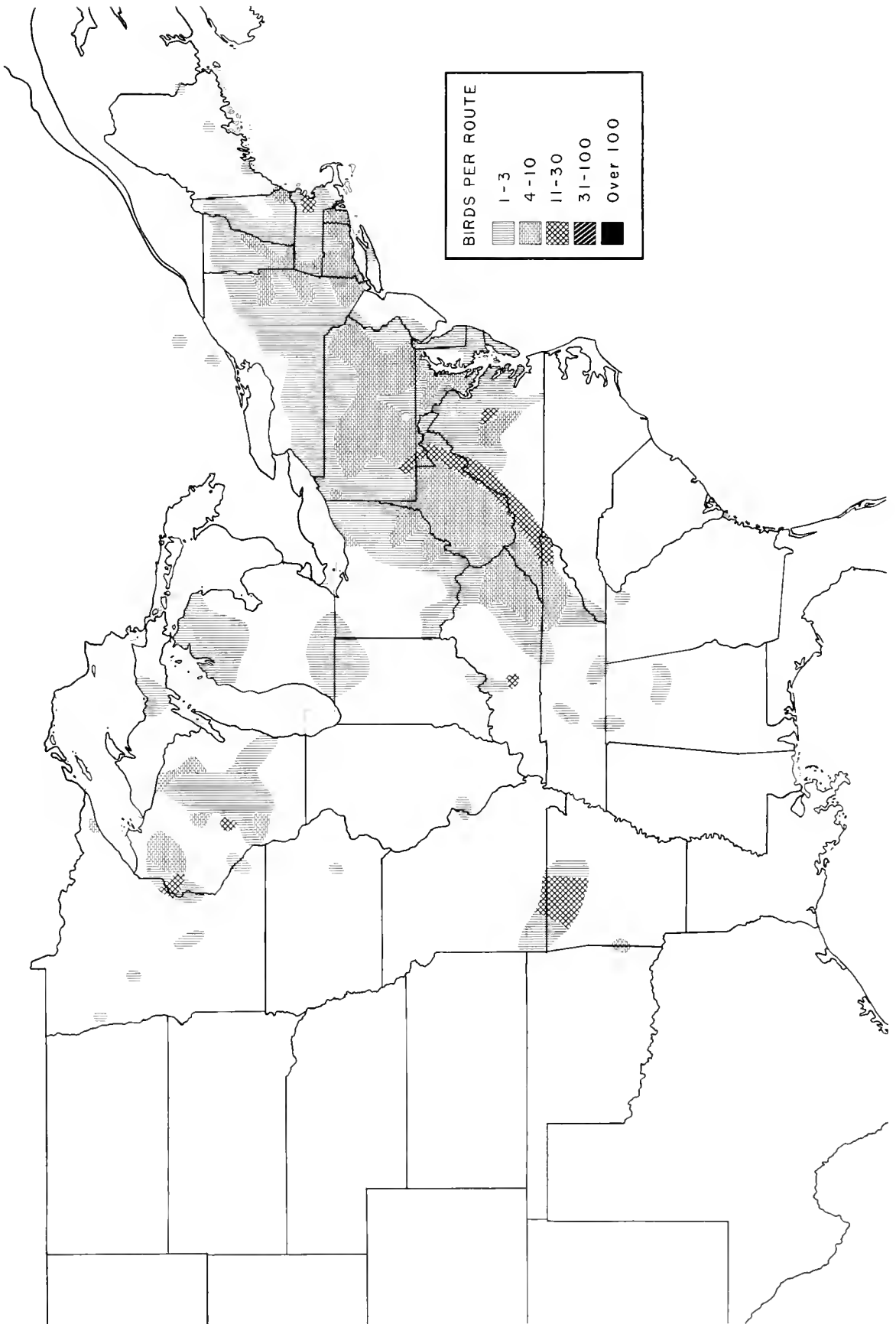


Figure 30.--Scarlet Tanager breeding distribution, 1967

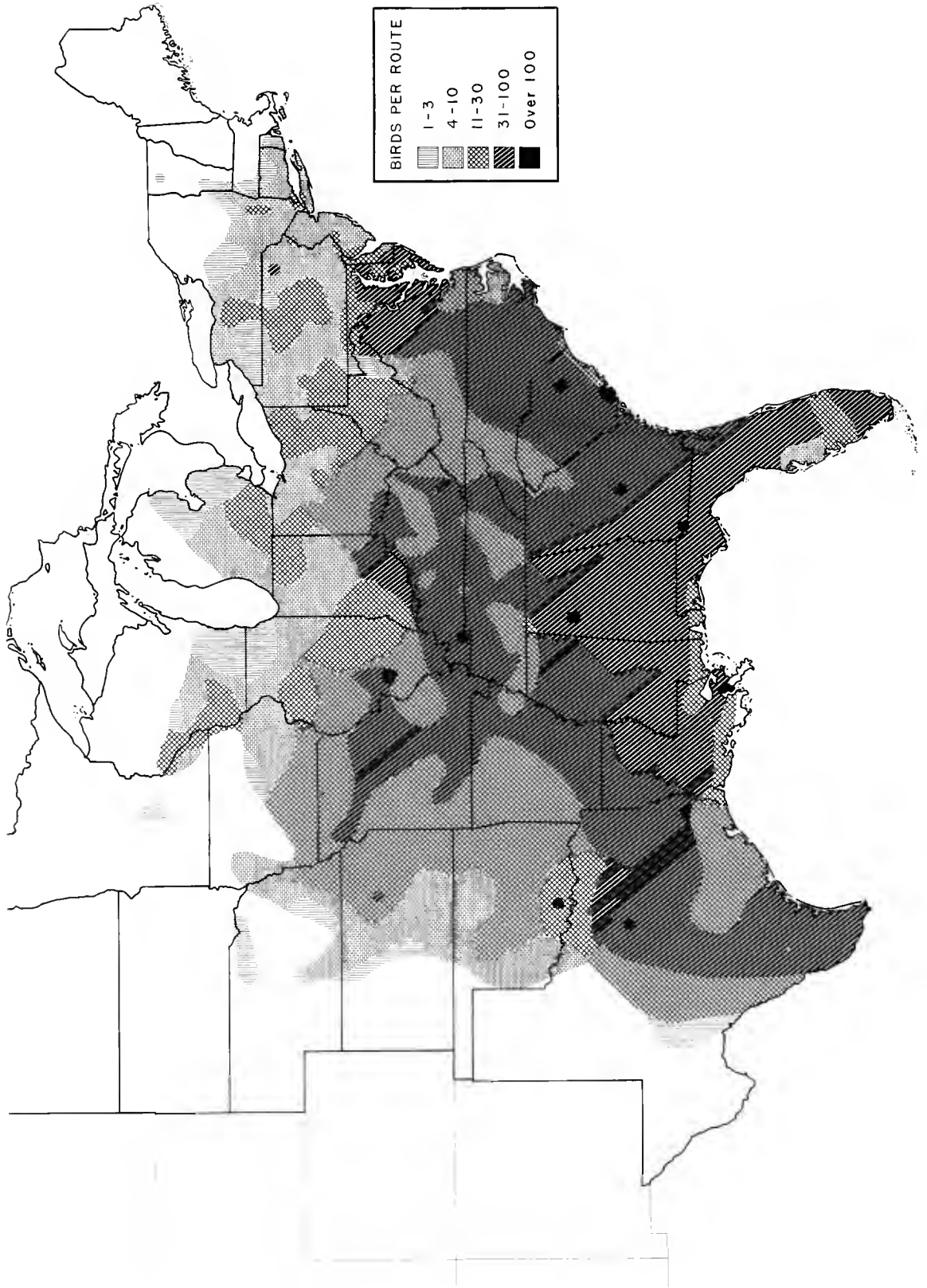


Figure 31.--Cardinal breeding distribution, 1967

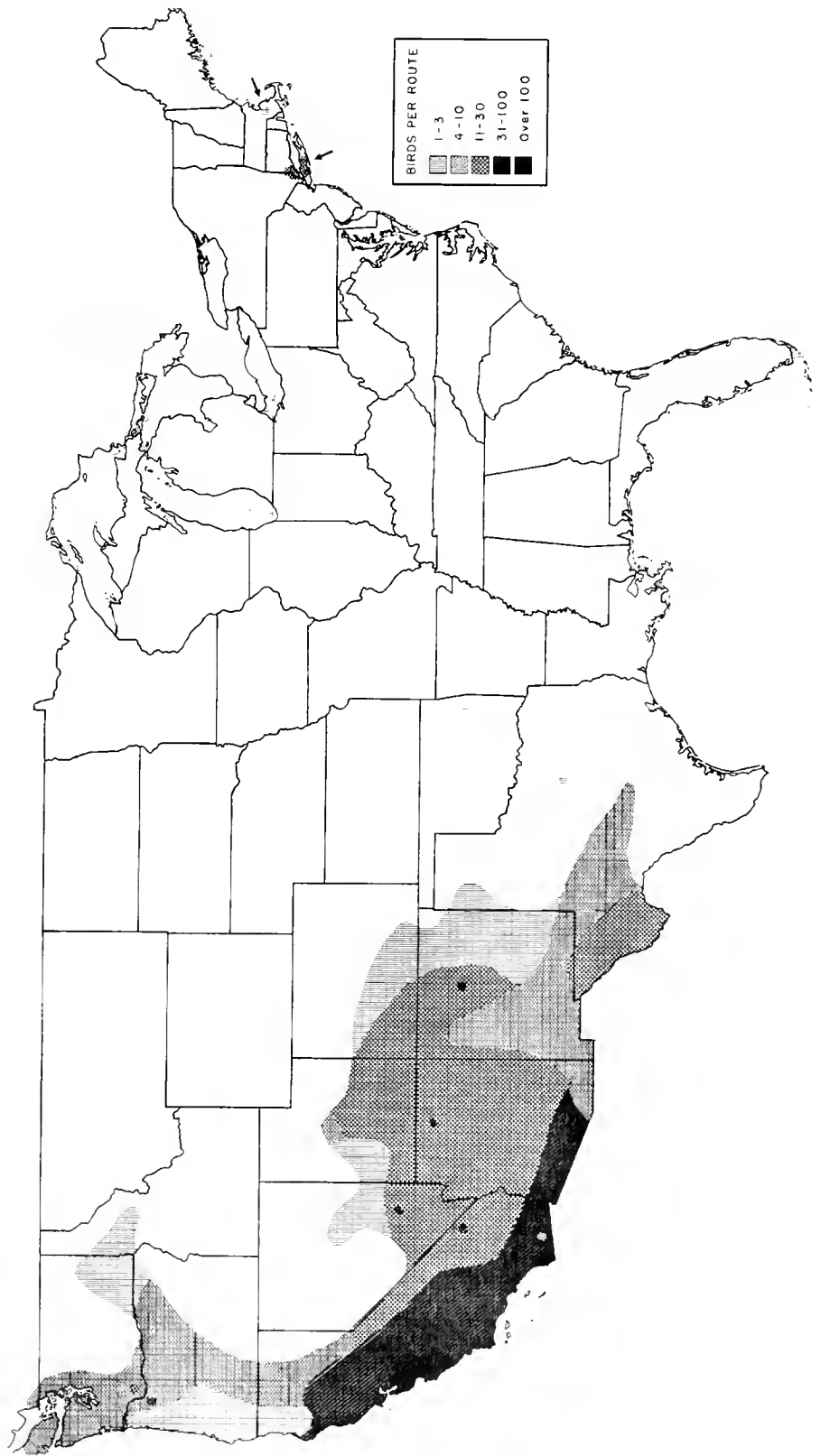


Figure 32.--House Finch breeding distribution, 1968

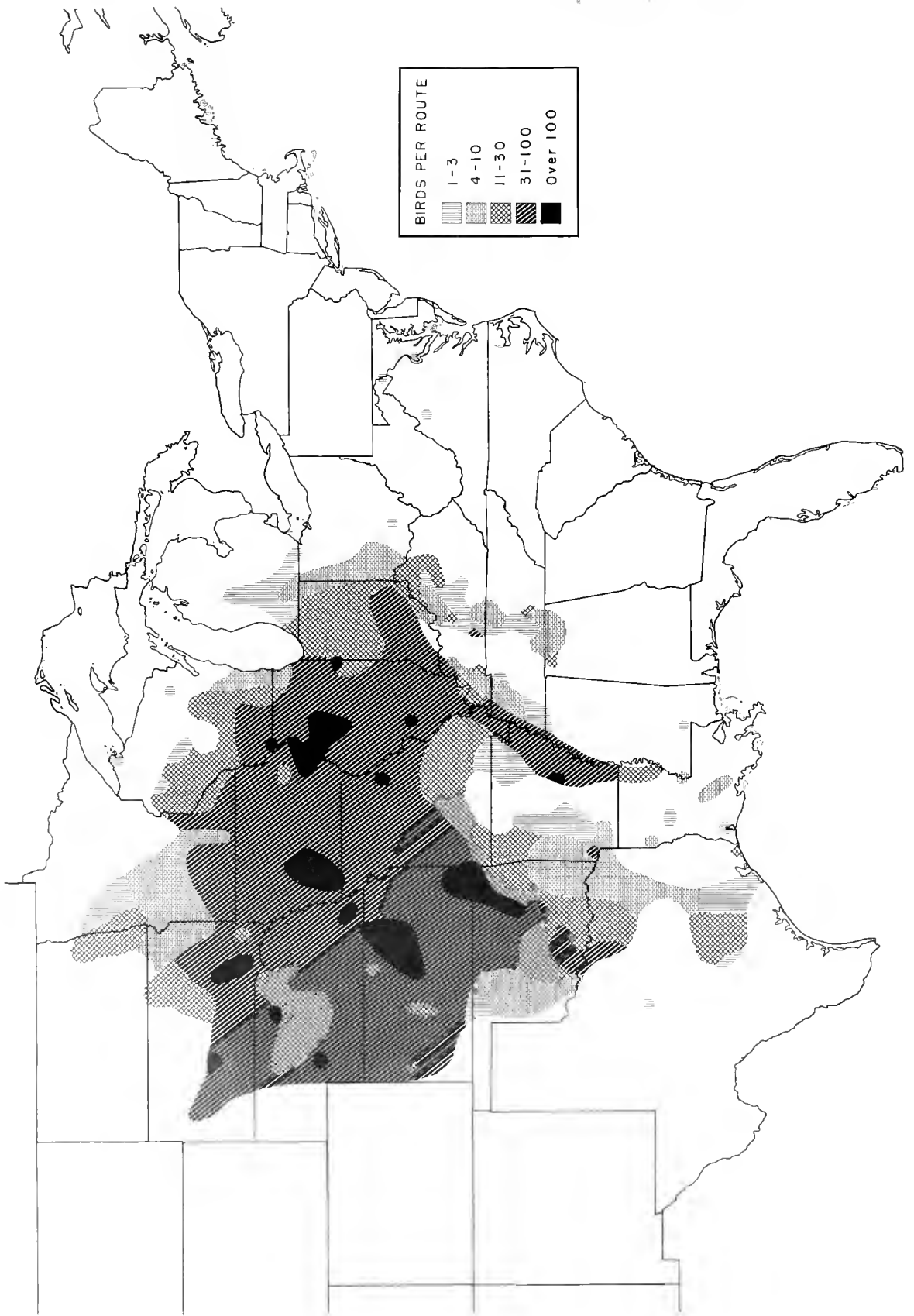


Figure 33.--Dickcissel breeding distribution, 1967

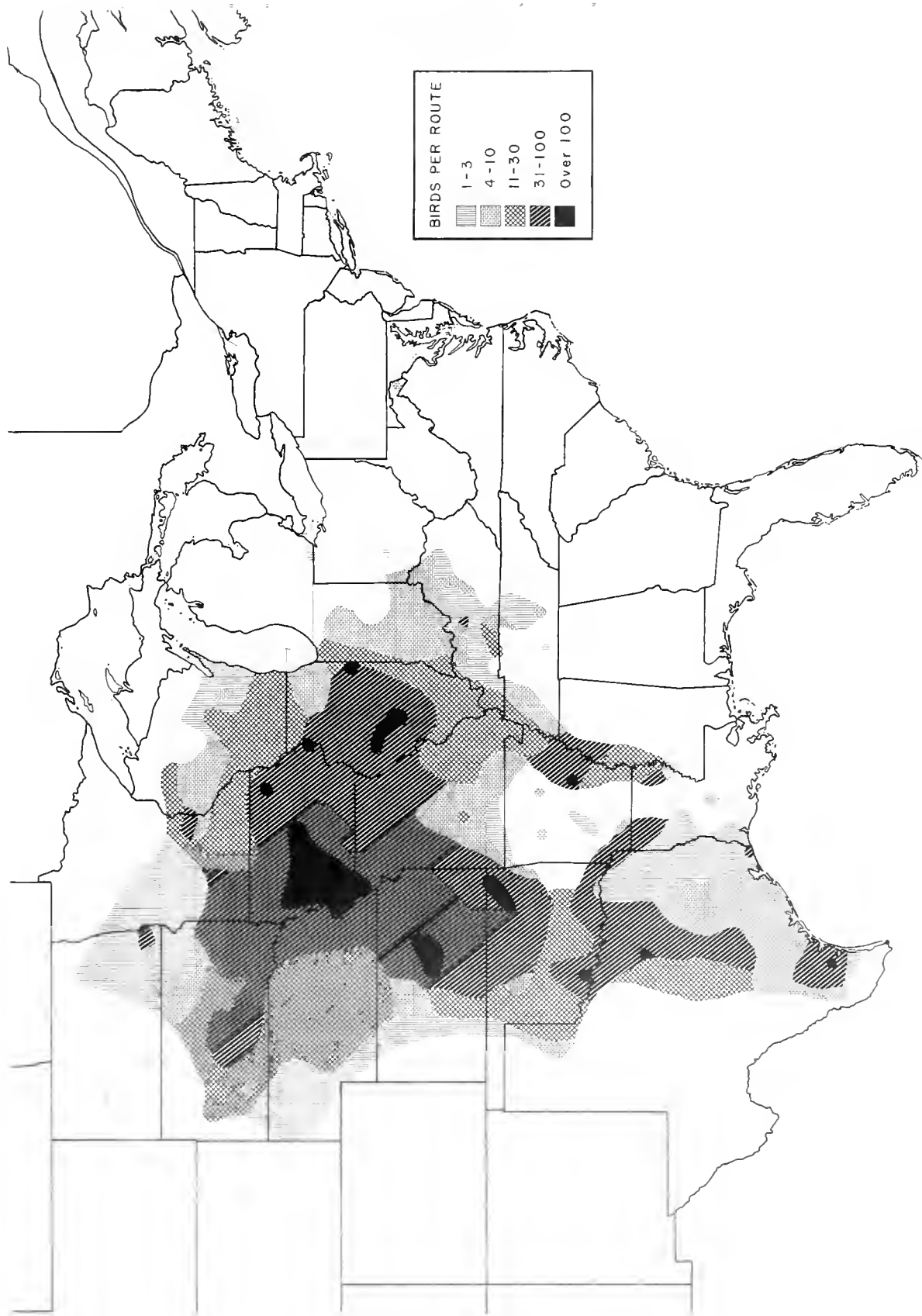


Figure 34.--Dickcissel breeding distribution, 1968

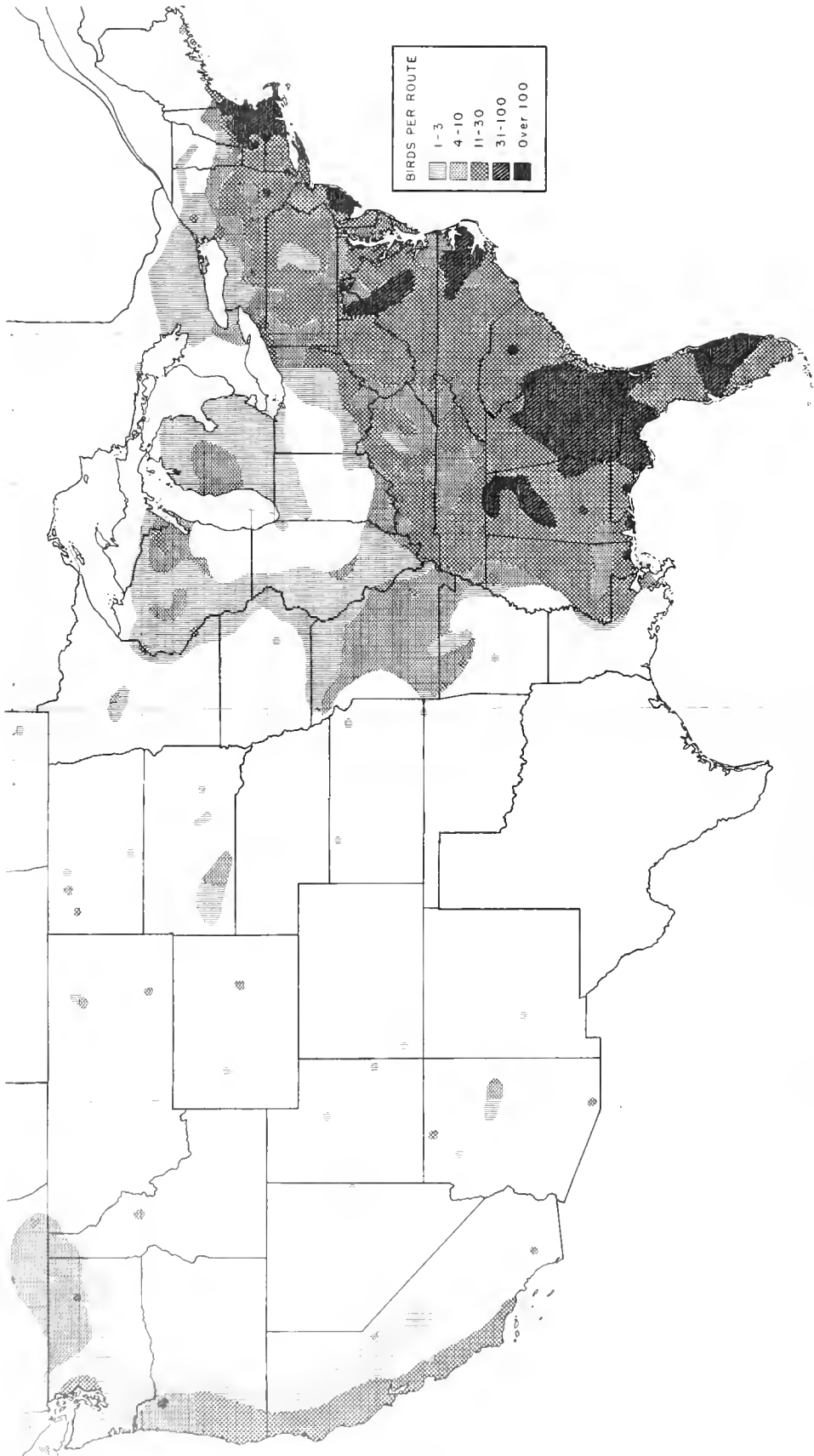


Figure 35.--Rufous-sided Towhee breeding distribution, 1968

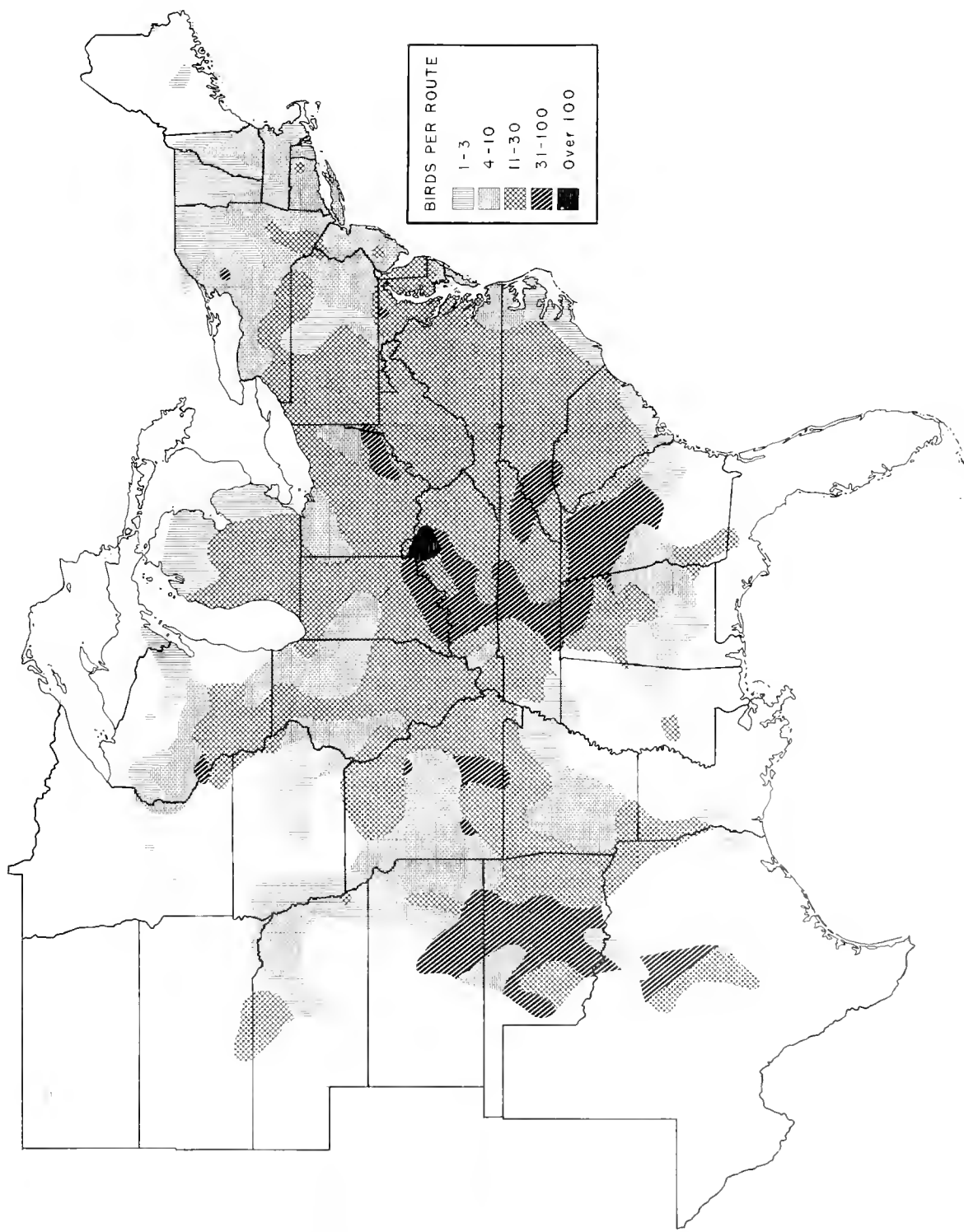


Figure 36.--Field Sparrow breeding distribution, 1967

Table 1.--Total individuals recorded, 1967 and 1968

| Species                | Total Individuals |                  | Species                | Total Individuals |                  |
|------------------------|-------------------|------------------|------------------------|-------------------|------------------|
|                        | 982 Rts<br>1967   | 1174 Rts<br>1968 |                        | 982 Rts<br>1967   | 1174 Rts<br>1968 |
| Common Loon            | 107               | 129              | Shoveler               | 54                | 109              |
| Red-throated Loon      |                   | 1                | Wood Duck              | 203               | 233              |
| Red-necked Grebe       |                   | 8                | Redhead                | 115               | 92               |
| Horned Grebe           | 2                 | 13               | Ring-necked Duck       | 19                | 38               |
| Eared Grebe            | 6                 | 6                | Canvasback             | 18                | 31               |
| Least Grebe            | 2                 | 3                | Greater Scaup          |                   | 20               |
| Western Grebe          | 2                 | 48               | Lesser Scaup           | 21                | 54               |
| Pied-billed Grebe      | 84                | 87               | Common Goldeneye       | 11                | 28               |
| White Pelican          | 224               | 202              | Barrow's Goldeneye     |                   | 12               |
| Brown Pelican          | 21                | 11               | Bufflehead             |                   | 58               |
| Gannet                 | 12                | 1                | Oldsquaw               | 1                 | 3                |
| Double-cr. Cormorant   | 176               | 117              | Harlequin Duck         |                   | 1                |
| Brant's Cormorant      |                   | 11               | Common Eider           | 33                | 41               |
| Pelagic Cormorant      |                   | 5                | White-winged Scoter    |                   | 65               |
| Anhinga                | 29                | 62               | Surf Scoter            |                   | 18               |
| Magnif. Frigate-bird   | 4                 |                  | Ruddy Duck             | 65                | 55               |
| Great White Heron      | 13                | 4                | Hooded Merganser       | 3                 | 21               |
| Great Blue Heron       | 547               | 516              | Common Merganser       | 5                 | 44               |
| Green Heron            | 671               | 721              | Red-breasted Merganser | 10                | 32               |
| Little Blue Heron      | 671               | 564              | Turkey Vulture         | 1,697             | 1,828            |
| Cattle Egret           | 2,527             | 3,138            | Black Vulture          | 492               | 232              |
| Reddish Egret          | 2                 |                  | White-tailed Kite      |                   | 7                |
| Common Egret           | 545               | 393              | Swallow-tailed Kite    | 2                 |                  |
| Snowy Egret            | 222               | 193              | Mississippi Kite       | 98                | 117              |
| Louisiana Heron        | 49                | 62               | Goshawk                | 1                 | 11               |
| Blk-cr. Night Heron    | 69                | 187              | Sharp-shinned Hawk     | 8                 | 27               |
| Yellow-cr. Night Heron | 32                | 71               | Cooper's Hawk          | 26                | 25               |
| Least Bittern          | 6                 | 7                | Red-tailed Hawk        | 382               | 567              |
| American Bittern       | 177               | 186              | Red-shouldered Hawk    | 218               | 197              |
| Wood Ibis              | 29                | 14               | Broad-winged Hawk      | 87                | 95               |
| Glossy Ibis            | 101               | 67               | Swainson's Hawk        | 95                | 161              |
| White-faced Ibis       | 144               | 207              | Zone-tailed Hawk       |                   | 1                |
| White Ibis             | 772               | 810              | White-tailed Hawk      |                   | 3                |
| Roseate Spoonbill      | 2                 | 3                | Rough-legged Hawk      | 6                 | 3                |
| Mute Swan              | 23                | 14               | Ferruginous Hawk       | 3                 | 16               |
| Whistling Swan         | 1                 |                  | Gray Hawk              |                   | 1                |
| Canada Goose           | 71                | 177              | Harris' Hawk           | 36                | 33               |
| Blue Goose             | 1                 |                  | Golden Eagle           | 1                 | 13               |
| Blk-bellied Tree Duck  | 5                 | 33               | Bald Eagle             | 5                 | 7                |
| Fulvous Tree Duck      | 6                 | 19               | Marsh Hawk             | 139               | 248              |
| Mallard                | 1,270             | 1,609            | Osprey                 | 55                | 54               |
| Black Duck             | 138               | 309              | Caracara               | 8                 | 5                |
| Mottled Duck           | 116               | 132              | Prairie Falcon         |                   | 5                |
| Gadwall                | 116               | 179              | Peregrine Falcon       | 1                 |                  |
| Pintail                | 289               | 265              | Pigeon Hawk            |                   | 7                |
| Green-winged Teal      | 21                | 43               | Sparrow Hawk           | 521               | 918              |
| Blue-winged Teal       | 562               | 658              | Blue Grouse            |                   | 35               |
| Cinnamon Teal          |                   | 5                | Ruffed Grouse          | 99                | 96               |
| American Widgeon       | 64                | 47               | Gr. Prairie Chicken    | 19                | 118              |



Table 1.--Total individuals recorded, 1967 and 1968 (continued)

| Species                | Total Individuals |                  | Species               | Total Individuals |                  |
|------------------------|-------------------|------------------|-----------------------|-------------------|------------------|
|                        | 982 Rts<br>1967   | 1174 Rts<br>1968 |                       | 982 Rts<br>1967   | 1174 Rts<br>1968 |
| Sharp-tailed Grouse    | 52                | 107              | Wilson's Phalarope    | 77                | 136              |
| Sage Grouse            |                   | 17               | Glaucous-winged Gull  |                   | 13               |
| Bobwhite               | 21,586            | 22,281           | Gr. Black-backed Gull | 201               | 413              |
| Scaled Quail           | 225               | 525              | Western Gull          |                   | 60               |
| California Quail       |                   | 361              | Herring Gull          | 3,162             | 2,458            |
| Gambel's Quail         |                   | 306              | California Gull       |                   | 143              |
| Mountain Quail         |                   | 8                | Ring-billed Gull      | 480               | 730              |
| Ring-neck. Pheasant    | 4,575             | 6,312            | Laughing Gull         | 2,009             | 1,126            |
| Chukar                 |                   | 48               | Franklin's Gull       | 686               | 683              |
| Gray Partridge         | 22                | 43               | Bonaparte's Gull      |                   | 3                |
| Turkey                 | 56                | 40               | Gull-billed Tern      | 3                 | 9                |
| Sandhill Crane         | 86                | 30               | Forster's Tern        | 13                | 33               |
| Limpkin                | 16                | 20               | Common Tern           | 284               | 388              |
| King Rail              | 11                | 12               | Arctic Tern           | 2                 |                  |
| Clapper Rail           | 54                | 53               | Least Tern            | 271               | 119              |
| Virginia Rail          | 12                | 4                | Royal Tern            | 40                | 106              |
| Sora                   | 86                | 149              | Caspian Tern          | 16                | 13               |
| Purple Gallinule       | 28                | 1                | Black Tern            | 652               | 804              |
| Common Gallinule       | 47                | 31               | Black Skimmer         | 90                | 42               |
| American Coot          | 389               | 400              | Black Guillemot       |                   | 1                |
| American Oystercatcher |                   | 1                | White-crowned Pigeon  | 24                |                  |
| Black Oystercatcher    |                   | 1                | Band-tailed Pigeon    |                   | 231              |
| Semipalmated Plover    | 3                 | 8                | Rock Dove             | 7,752             | 7,966            |
| Snowy Plover           |                   | 1                | White-winged Dove     | 37                | 578              |
| Wilson's Plover        | 2                 | 6                | Mourning Dove         | 26,083            | 28,550           |
| Killdeer               | 3,322             | 4,910            | Ground Dove           | 521               | 347              |
| Mountain Plover        | 4                 | 20               | Inca Dove             | 19                | 29               |
| Black-bellied Plover   | 26                | 17               | Yellow-billed Cuckoo  | 3,195             | 3,496            |
| Ruddy Turnstone        | 4                 | 2                | Black-billed Cuckoo   | 475               | 385              |
| American Woodcock      | 39                | 40               | Roadrunner            | 59                | 91               |
| Common Snipe           | 376               | 590              | Smooth-billed Ani     | 5                 | 25               |
| Long-billed Curlew     | 14                | 108              | Barn Owl              | 1                 | 3                |
| Upland Plover          | 665               | 738              | Screech Owl           | 38                | 20               |
| Spotted Sandpiper      | 202               | 289              | Great Horned Owl      | 76                | 149              |
| Solitary Sandpiper     | 9                 | 3                | Pygmy Owl             |                   | 1                |
| Willet                 | 194               | 166              | Elf Owl               |                   | 1                |
| Greater Yellowlegs     | 7                 | 26               | Burrowing Owl         | 63                | 199              |
| Lesser Yellowlegs      | 3                 | 39               | Barred Owl            | 65                | 77               |
| Pectoral Sandpiper     | 1                 | 4                | Long-eared Owl        |                   | 1                |
| White-rumped Sandpiper | 1                 | 1                | Short-eared Owl       | 11                | 29               |
| Least Sandpiper        | 2                 | 6                | Saw-whet Owl          | 1                 |                  |
| Dunlin                 | 1                 |                  | Chuck-will's-widow    | 570               | 498              |
| Short-billed Dowitcher | 4                 |                  | Whip-poor-will        | 268               | 244              |
| Stilt Sandpiper        |                   | 1                | Poor-will             | 17                | 18               |
| Semipalmated Sandpiper | 652               | 1,001            | Pauraque              | 4                 | 4                |
| Marbled Godwit         | 49                | 71               | Common Nighthawk      | 1,311             | 1,983            |
| Sanderling             | 4                 | 1                | Lesser Nighthawk      | 47                | 64               |
| American Avocet        | 24                | 41               | Black Swift           |                   | 46               |
| Black-necked Stilt     | 48                | 241              | Chimney Swift         | 8,529             | 8,961            |

Table 1.--Total individuals recorded, 1967 and 1968 (continued)

| <u>Species</u>          | <u>Total Individuals</u>      |                                | <u>Species</u>         | <u>Total Individuals</u>      |                                |
|-------------------------|-------------------------------|--------------------------------|------------------------|-------------------------------|--------------------------------|
|                         | <u>982 Rts</u><br><u>1967</u> | <u>1174 Rts</u><br><u>1968</u> |                        | <u>982 Rts</u><br><u>1967</u> | <u>1174 Rts</u><br><u>1968</u> |
| Vaux's Swift            |                               | 20                             | Yel-bellied Flycatcher | 83                            | 177                            |
| White-throated Swift    | 3                             | 102                            | Acadian Flycatcher     | 921                           | 800                            |
| Lucifer Hummingbird     |                               | 1                              | Traill's Flycatcher    | 1,392                         | 2,168                          |
| Ruby-thr. Hummingbird   | 295                           | 300                            | Least Flycatcher       | 1,616                         | 1,856                          |
| Blk-chin. Hummingbird   | 10                            | 34                             | Hammond's Flycatcher   |                               | 121                            |
| Costa's Hummingbird     |                               | 10                             | Dusky Flycatcher       |                               | 53                             |
| Anna's Hummingbird      |                               | 18                             | Gray Flycatcher        |                               | 8                              |
| Broad-tail Hummingbird  |                               | 65                             | Western Flycatcher     | 16                            | 230                            |
| Rufous Hummingbird      |                               | 65                             | Unidentified Empidonax |                               | 3                              |
| Allen's Hummingbird     |                               | 32                             | Eastern Wood Pewee     | 3,792                         | 3,375                          |
| Calliope Hummingbird    |                               | 11                             | Western Wood Pewee     | 29                            | 617                            |
| Broad-bill Hummingbird  |                               | 2                              | Olive-sided Flycatcher | 140                           | 474                            |
| Belted Kingfisher       | 409                           | 488                            | Vermilion Flycatcher   | 10                            | 15                             |
| Yel-shafted Flicker     | 5,188                         | 5,272                          | Horned Lark            | 7,149                         | 12,331                         |
| Hybrid flicker          |                               | 2                              | Violet-green Swallow   | 18                            | 741                            |
| Red-shafted Flicker     | 15                            | 431                            | Tree Swallow           | 2,605                         | 3,668                          |
| Gilded Flicker          |                               | 10                             | Bank Swallow           | 3,162                         | 4,322                          |
| Pileated Woodpecker     | 552                           | 594                            | Rough-winged Swallow   | 606                           | 959                            |
| Red-bellied Woodpecker  | 3,527                         | 3,032                          | Barn Swallow           | 13,791                        | 17,168                         |
| Gold-front. Woodpecker  | 328                           | 281                            | Cliff Swallow          | 3,363                         | 7,174                          |
| Gila Woodpecker         |                               | 41                             | Purple Martin          | 5,350                         | 5,169                          |
| Red-headed Woodpecker   | 1,911                         | 1,872                          | Gray Jay               | 58                            | 114                            |
| Acorn Woodpecker        |                               | 293                            | Blue Jay               | 13,348                        | 12,785                         |
| Lewis' Woodpecker       |                               | 57                             | Steller's Jay          |                               | 266                            |
| Yel-bellied Sapsucker   | 534                           | 629                            | Scrub Jay              | 27                            | 378                            |
| Red-breasted Sapsucker  |                               | 1                              | Mexican Jay            |                               | 36                             |
| Williamson's Sapsucker  |                               | 3                              | Green Jay              | 1                             | 2                              |
| Hairy Woodpecker        | 344                           | 439                            | Black-billed Magpie    | 97                            | 922                            |
| Downy Woodpecker        | 1,528                         | 1,702                          | Yellow-billed Magpie   |                               | 167                            |
| Ladder-back Woodpecker  | 86                            | 116                            | Common Raven           | 484                           | 1,231                          |
| Nuttall's Woodpecker    |                               | 45                             | White-necked Raven     | 60                            | 90                             |
| Red-cockad. Woodpecker  | 19                            | 7                              | Common Crow            | 25,051                        | 26,935                         |
| White-head. Woodpecker  |                               | 1                              | Northwestern Crow      |                               | 134                            |
| Blk-back 3-toe. Woodpkr | 1                             | 6                              | Fish Crow              | 977                           | 884                            |
| No. 3-toed Woodpecker   |                               | 5                              | Pinon Jay              |                               | 921                            |
| Eastern Kingbird        | 5,530                         | 5,652                          | Clark's Nutcracker     |                               | 42                             |
| Gray Kingbird           | 40                            | 5                              | Black-capped Chickadee | 1,700                         | 2,482                          |
| Tropical Kingbird       | 4                             | 6                              | Carolina Chickadee     | 2,225                         | 2,329                          |
| Western Kingbird        | 1,110                         | 1,916                          | Mountain Chickadee     |                               | 259                            |
| Cassin's Kingbird       |                               | 137                            | Boreal Chickadee       | 268                           | 150                            |
| Scissor-tail. Flycatchr | 1,999                         | 2,076                          | Chestnut-bk. Chickadee |                               | 286                            |
| Kiskadee Flycatcher     | 9                             | 6                              | Tufted Titmouse        | 5,024                         | 4,396                          |
| Gr. Crested Flycatcher  | 3,464                         | 3,544                          | Black-crested Titmouse | 57                            | 70                             |
| Wied's Cr. Flycatcher   | 75                            | 73                             | Plain Titmouse         |                               | 160                            |
| Ash-throat Flycatcher   | 62                            | 439                            | Bridled Titmouse       |                               | 12                             |
| Olivaceous Flycatcher   |                               | 8                              | Verdin                 | 135                           | 267                            |
| Eastern Phoebe          | 2,251                         | 2,265                          | Common Bushtit         |                               | 161                            |
| Black Phoebe            |                               | 29                             | White-br. Nuthatch     | 606                           | 905                            |
| Say's Phoebe            | 8                             | 137                            | Red-breasted Nuthatch  | 94                            | 493                            |

Table 1.--Total individuals recorded, 1967 and 1968 (continued)

| <u>Species</u>          | <u>Total Individuals</u>      |                                | <u>Species</u>         | <u>Total Individuals</u>      |                                |
|-------------------------|-------------------------------|--------------------------------|------------------------|-------------------------------|--------------------------------|
|                         | <u>982 Rts</u><br><u>1967</u> | <u>1174 Rts</u><br><u>1968</u> |                        | <u>982 Rts</u><br><u>1967</u> | <u>1174 Rts</u><br><u>1968</u> |
| Brown-headed Nuthatch   | 339                           | 255                            | Hutton's Vireo         |                               | 21                             |
| Pigmy Nuthatch          |                               | 60                             | Bell's Vireo           | 291                           | 308                            |
| Brown Creeper           | 19                            | 76                             | Gray Vireo             |                               | 7                              |
| Wrentit                 |                               | 171                            | Yellow-thr. Vireo      | 521                           | 503                            |
| Dipper                  |                               | 7                              | Solitary Vireo         | 122                           | 297                            |
| House Wren              | 3,921                         | 4,472                          | Black-whiskered Vireo  | 18                            | 1                              |
| Winter Wren             | 298                           | 694                            | Red-eyed Vireo         | 7,163                         | 8,018                          |
| Bewick's Wren           | 717                           | 704                            | Philadelphia Vireo     | 2                             | 31                             |
| Carolina Wren           | 3,886                         | 3,991                          | Warbling Vireo         | 1,143                         | 1,542                          |
| Cactus Wren             | 126                           | 583                            | Black-&-white Warbler  | 690                           | 738                            |
| Long-billed Marsh Wren  | 170                           | 219                            | Prothonotary Warbler   | 306                           | 299                            |
| Short-billed Marsh Wren | 267                           | 327                            | Swainson's Warbler     | 3                             | 2                              |
| Canon Wren              | 2                             | 35                             | Worm-eating Warbler    | 94                            | 69                             |
| Rock Wren               | 11                            | 214                            | Golden-winged Warbler  | 150                           | 115                            |
| Mockingbird             | 17,219                        | 17,411                         | Blue-winged Warbler    | 202                           | 155                            |
| Catbird                 | 5,452                         | 5,395                          | Brewster's Warbler     | 1                             |                                |
| Brown Thrasher          | 4,834                         | 4,481                          | Tennessee Warbler      | 219                           | 342                            |
| Long-billed Thrasher    | 3                             |                                | Orange-crowned Warbler |                               | 229                            |
| Bendire's Thrasher      |                               | 40                             | Nashville Warbler      | 675                           | 816                            |
| Curve-billed Thrasher   | 106                           | 160                            | Virginia's Warbler     |                               | 5                              |
| California Thrasher     |                               | 11                             | Lucy's Warbler         |                               | 175                            |
| Le Conte's Thrasher     |                               | 52                             | Parula Warbler         | 742                           | 683                            |
| Sage Thrasher           |                               | 434                            | Yellow Warbler         | 3,411                         | 3,974                          |
| Robin                   | 29,489                        | 34,193                         | Magnolia Warbler       | 663                           | 978                            |
| Varied Thrush           |                               | 328                            | Cape May Warbler       | 29                            | 70                             |
| Wood Thrush             | 6,915                         | 6,474                          | Blk-thr. Blue Warbler  | 84                            | 122                            |
| Hermit Thrush           | 713                           | 1,086                          | Myrtle Warbler         | 231                           | 465                            |
| Swainson's Thrush       | 819                           | 2,724                          | Audubon's Warbler      | 34                            | 476                            |
| Gray-cheeked Thrush     | 5                             | 57                             | Blk-thr. Gray Warbler  |                               | 80                             |
| Veery                   | 2,627                         | 3,300                          | Townsend's Warbler     |                               | 61                             |
| Eastern Bluebird        | 3,261                         | 2,705                          | Blk-thr. Green Warbler | 433                           | 488                            |
| Western Bluebird        |                               | 158                            | Golden-cheeked Warbler | 1                             |                                |
| Mountain Bluebird       | 7                             | 225                            | Hemit Warbler          |                               | 57                             |
| Townsend's Solitaire    |                               | 49                             | Cerulean Warbler       | 110                           | 140                            |
| Blue-gray Gnatcatcher   | 1,054                         | 992                            | Blackburnian Warbler   | 159                           | 201                            |
| Blk-tailed Gnatcatcher  | 14                            | 100                            | Yellow-thr. Warbler    | 171                           | 197                            |
| Golden-crowned Kinglet  | 34                            | 159                            | Grace's Warbler        |                               | 45                             |
| Ruby-crowned Kinglet    | 781                           | 963                            | Chestnut-sided Warbler | 1,559                         | 1,851                          |
| Water Pipit             |                               | 10                             | Bay-breasted Warbler   | 97                            | 103                            |
| Sprague's Pipit         | 15                            | 47                             | Blackpoll Warbler      | 48                            | 157                            |
| Bohemian Waxwing        |                               | 4                              | Pine Warbler           | 1,100                         | 1,004                          |
| Cedar Waxwing           | 1,581                         | 2,317                          | Prairie Warbler        | 1,197                         | 1,099                          |
| Phainopepla             |                               | 28                             | Palm Warbler           | 8                             | 25                             |
| Northern Shrike         | 1                             | 4                              | Ovenbird               | 3,572                         | 3,573                          |
| Loggerhead Shrike       | 1,780                         | 2,106                          | Northern Waterthrush   | 193                           | 272                            |
| Starling                | 61,207                        | 67,404                         | Louisiana Waterthrush  | 162                           | 110                            |
| Black-capped Vireo      | 1                             | 3                              | Kentucky Warbler       | 610                           | 583                            |
| White-eyed Vireo        | 2,298                         | 2,032                          | Connecticut Warbler    | 4                             | 9                              |

Table 1.--Total individuals recorded, 1967 and 1968 (continued)

| Species                | Total Individuals |                  | Species                | Total Individuals |                  |
|------------------------|-------------------|------------------|------------------------|-------------------|------------------|
|                        | 982 Rts<br>1967   | 1174 Rts<br>1968 |                        | 982 Rts<br>1967   | 1174 Rts<br>1968 |
| Mourning Warbler       | 400               | 504              | Pine Grosbeak          | 83                | 81               |
| Macgillivray's Warbler |                   | 294              | Black Rosy Finch       |                   | 3                |
| Yellowthroat           | 10,377            | 11,941           | Common Redpoll         | 2                 | 97               |
| Yellow-breasted Chat   | 5,039             | 4,675            | Pine Siskin            | 276               | 1,418            |
| Red-faced Warbler      |                   | 5                | American Goldfinch     | 9,529             | 12,832           |
| Hooded Warbler         | 416               | 364              | Lesser Goldfinch       | 42                | 309              |
| Wilson's Warbler       | 18                | 409              | Lawrence's Goldfinch   |                   | 25               |
| Canada Warbler         | 290               | 353              | Red Crossbill          | 45                | 469              |
| American Redstart      | 1,659             | 2,120            | White-winged Crossbill | 50                | 51               |
| House Sparrow          | 72,147            | 69,567           | Olive Sparrow          | 18                | 8                |
| European Tree Sparrow  | 17                | 17               | Green-tailed Towhee    |                   | 108              |
| Bobolink               | 5,451             | 5,710            | Rufous-sided Towhee    | 9,489             | 9,879            |
| Eastern Meadowlark     | 24,641            | 25,726           | Brown Towhee           | 4                 | 325              |
| Western Meadowlark     | 18,072            | 25,004           | Abert's Towhee         |                   | 9                |
| Yellow-head. Blackbird | 735               | 1,535            | Lark Bunting           | 5,114             | 9,323            |
| Red-winged Blackbird   | 82,239            | 93,770           | Savannah Sparrow       | 4,823             | 5,911            |
| Tricolored Blackbird   |                   | 276              | Grasshopper Sparrow    | 3,944             | 4,070            |
| Orchard Oriole         | 3,061             | 3,180            | Baird's Sparrow        | 63                | 73               |
| Black-headed Oriole    | 1                 |                  | Le Conte's Sparrow     | 4                 | 66               |
| Spotted-br. Oriole     |                   | 6                | Henslow's Sparrow      | 93                | 86               |
| Hooded Oriole          |                   | 16               | Sharp-tailed Sparrow   | 47                | 17               |
| Scott's Oriole         | 4                 | 128              | Seaside Sparrow        | 42                | 37               |
| Baltimore Oriole       | 3,285             | 3,419            | Vesper Sparrow         | 3,534             | 4,434            |
| Bullock's Oriole       | 91                | 333              | Lark Sparrow           | 1,954             | 2,324            |
| Rusty Blackbird        | 64                | 64               | Rufous-crowned Sparrow | 41                | 45               |
| Brewer's Blackbird     | 540               | 6,255            | Bachman's Sparrow      | 201               | 136              |
| Boat-tailed Grackle    | 1,537             | 2,577            | Cassin's Sparrow       | 428               | 790              |
| Common Grackle         | 63,229            | 68,090           | Black-throated Sparrow | 695               | 2,023            |
| Brn-headed Cowbird     | 14,195            | 14,677           | Sage Sparrow           |                   | 391              |
| Bronzed Cowbird        | 71                | 61               | White-winged Junco     | 4                 | 2                |
| Western Tanager        | 20                | 464              | Slate-colored Junco    | 888               | 1,119            |
| Scarlet Tanager        | 1,101             | 1,426            | Oregon Junco           |                   | 614              |
| Hepatic Tanager        |                   | 4                | Gray-headed Junco      |                   | 52               |
| Summer Tanager         | 1,577             | 1,484            | Tree Sparrow           |                   | 5                |
| Cardinal               | 20,810            | 18,347           | Chipping Sparrow       | 8,221             | 9,312            |
| Pyrrhuloxia            | 588               | 580              | Clay-colored Sparrow   | 625               | 1,021            |
| Rose-breasted Grosbeak | 1,355             | 1,620            | Brewer's Sparrow       | 4                 | 403              |
| Black-headed Grosbeak  | 2                 | 311              | Field Sparrow          | 10,506            | 9,722            |
| Blue Grosbeak          | 1,334             | 1,341            | Black-chinned Sparrow  |                   | 5                |
| Indigo Bunting         | 13,226            | 11,301           | Harris' Sparrow        |                   | 1                |
| Lazuli Bunting         | 13                | 210              | White-crowned Sparrow  |                   | 442              |
| Varied Bunting         | 2                 | 6                | White-throated Sparrow | 4,234             | 5,519            |
| Painted Bunting        | 1,623             | 1,473            | Fox Sparrow            | 21                | 124              |
| Chickadee              | 12,111            | 10,811           | Lincoln's Sparrow      | 102               | 220              |
| Red-winged Grosbeak    | 503               | 1,064            | Swamp Sparrow          | 422               | 516              |
| Red-eyed Vireo         | 1,000             | 1,294            | Song Sparrow           | 15,303            | 18,247           |
| Blue Jay               | 1,000             | 97               | McCown's Longspur      | 7                 | 11               |
| Blue Jay               | 1,000             | 1,000            | Chestnut-col. Longspur | 651               | 1,254            |

TABLE 2. AVERAGE NUMBER OF BIRDS PER ROUTE, IN WESTERN STATES AND PROVINCES, 1968

| NO. OF ROUTES<br>STATES | 14 |    | 13 | 12 |    | 10 | 07   |    | 09 | 10 | 06   |      | 02 | 05  |     |
|-------------------------|----|----|----|----|----|----|------|----|----|----|------|------|----|-----|-----|
|                         | 28 | 14 |    | 14 | BC |    | ARIZ | NM |    |    | UTAH | COLO |    | WYO | IDA |
| COMMON LOON             |    |    |    | 1  |    |    |      |    |    |    |      |      |    |     |     |
| RED-NECKED GREBE        |    |    |    | +  |    |    |      |    |    |    |      |      | 1  |     | 1   |
| HORNED GREBE            |    |    |    |    |    |    |      |    |    |    |      |      |    |     | 1   |
| EARED GREBE             |    |    |    |    |    |    |      |    |    |    |      |      | 1  |     | +   |
| WESTERN GREBE           |    |    |    | +  |    |    |      |    |    |    |      |      | 20 |     |     |
| PIED-BILLED GREBE       |    |    |    | +  |    |    |      |    |    |    |      |      |    |     |     |
| WHITE PELICAN           |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| DOUBLE-CR. CORMORANT    |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| BRANDT'S CORMORANT      | +  |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| PELAGIC CORMORANT       | +  |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| GREAT BLUE HERON        |    |    |    | 1  | 2  |    |      |    |    |    |      |      | 5  |     | +   |
| GREEN HERON             |    |    |    | +  |    |    |      |    |    |    |      |      |    |     |     |
| COMMON EGRET            |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| SNOWY EGRET             |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| BLACK-CR. NIGHT HERON   |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| AMERICAN BITTERN        |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| CANADA GOOSE            |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| MALLARD                 | 1  | +  | 1  | 1  | 4  | 1  | 1    | 1  | 1  | 2  | +    | 2    | 7  | 8   | 1   |
| GADWALL                 |    | +  |    | +  |    |    |      |    |    | +  |      |      | 5  | 16  |     |
| PINTAIL                 | +  | 4  |    | 2  | 1  | 1  |      |    |    | +  |      |      | 5  | 4   |     |
| GREEN-WINGED TEAL       |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| BLUE-WINGED TEAL        |    |    |    | +  | 1  |    |      |    |    |    |      |      |    |     | 2   |
| CINNAMON TEAL           |    |    |    |    |    |    |      |    |    |    |      |      |    |     | 10  |
| AMERICAN WIDGEON        |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| SHOVELER                |    |    |    |    |    |    |      |    |    |    |      |      | 3  | 5   | 5   |
| WOOD DUCK               | +  |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| REDHEAD                 |    | 1  |    | 1  |    |    |      |    |    |    |      |      | 3  | 1   | 1   |
| CANVASBACK              |    |    |    |    |    |    |      |    |    |    |      |      |    |     | 2   |
| GREATER SCAUP           |    |    |    | 1  |    |    |      |    |    |    |      |      |    |     |     |
| LESSER SCAUP            |    | +  |    |    |    |    |      |    |    |    |      |      |    |     | 8   |
| COMMON GOLDENEYE        |    |    |    | 1  |    |    |      |    |    |    |      |      | 1  |     | 1   |
| BARROW'S GOLDENEYE      |    |    |    | 1  |    |    |      |    |    |    |      |      |    |     |     |
| BUFFLEHEAD              |    |    |    | 1  |    |    |      |    |    |    |      |      |    |     | 1   |
| PARLEQUIN DUCK          |    |    |    | 4  |    |    |      |    |    |    |      |      |    |     |     |
| WHITE-WINGED SCOTER     |    |    |    | +  |    |    |      |    |    |    |      |      |    |     |     |
| SURF SCOTER             |    |    |    |    |    |    |      |    |    |    |      |      |    |     | 13  |
| RUDDY DUCK              |    |    |    | 2  |    |    |      |    |    |    |      |      |    |     |     |
| HOODED Merganser        |    |    |    | +  |    |    |      |    |    |    |      |      |    |     | 1   |
| COMMON Merganser        | +  |    |    | +  |    |    |      |    |    |    |      |      |    |     |     |
| TURKEY VULTURE          | 7  | 1  | 2  | 1  |    | 1  |      |    |    |    | 1    |      |    |     |     |
| WHITE-TAILED KITE       |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| GOSHAWK                 |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| SHARP-SHINNED HAWK      |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| COOPER'S HAWK           |    | +  |    |    |    |    |      |    |    |    |      |      |    |     |     |
| RED-TAILED HAWK         | 3  | +  | 1  | 1  |    | 1  |      | 2  |    |    |      |      | 1  |     | 2   |
| RED-SHOULDERED HAWK     |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| BROAD-WINGED HAWK       |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| SWAINSON'S HAWK         |    | +  |    |    |    |    |      |    |    | 1  |      |      | 1  |     | +   |
| ZONL-TAILED HAWK        |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| ROUGH-LEGGED HAWK       |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |
| FERRUGINOUS HAWK        |    |    |    |    |    |    |      |    |    |    |      |      |    |     |     |



TABLE 2 AVERAGE NUMBER OF BIRDS PER ROUTE, IN WESTERN STATES AND PROVINCES, 1968

| NO. OF ROUTES<br>STATES      | 2H  | 14  | 14  | 13   | 12 | 14   | 10 | 07   | 09   | 10  | 06  | 16   | 02  | 05   | 03   |
|------------------------------|-----|-----|-----|------|----|------|----|------|------|-----|-----|------|-----|------|------|
|                              | CAL | NEV | URE | WASH | BC | ARIZ | NM | UTAH | COLO | WYO | IDA | MONT | SAS | ALTA | ALAS |
| BAND-TAILED PTARMIGAN        | 1   |     |     | 3    | 6  | +    | 1  | +    | 3    |     |     |      |     |      |      |
| ROCK DOVE                    | 5   | +   |     | 1    | 11 | 1    | 3  |      | 3    | 1   | +   | 2    | 5   | 3    |      |
| WHITE-WINGED DOVE            | +   |     |     |      |    | 39   |    |      |      |     |     |      |     |      |      |
| MOURNING DOVE                | 34  | 31  | 10  | 10   | 1  | 45   | 21 | 16   | 35   | 17  | 17  | 28   | 7   | 1    |      |
| GROUND DOVE                  |     |     |     |      |    | 1    |    |      |      |     |     |      |     |      |      |
| TINCA DOVE                   |     |     |     |      |    | 1    | 1  |      |      | +   |     | +    |     |      |      |
| YELLOW-BILLED CUCKOO         |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BLACK-BILLED CUCKOO          |     |     |     |      |    | 1    | +  |      |      |     |     |      |     |      |      |
| ROADRUNNER                   | 1   |     |     |      |    | 1    |    |      |      |     |     |      |     |      |      |
| BARN OWL                     | +   |     |     |      |    |      | +  | +    | +    | +   | +   | +    |     |      | +    |
| GREAT HORNED OWL             | +   |     | 1   |      |    |      |    |      |      |     |     |      |     |      |      |
| PYGMY OWL                    | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| ELF OWL                      |     |     |     |      |    |      | 1  |      |      |     |     |      |     |      |      |
| BURROWING OWL                | 2   | +   |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BARRED OWL                   |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| SHORT-EARED OWL              |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| POOR-WILL                    | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| COMMON NIGHTHAWK             | +   | 3   | 1   | 1    | 1  | 2    | 10 | +    | +    | 2   | +   | 3    |     |      | +    |
| LESSER NIGHTHAWK             | 1   |     |     |      |    | 1    | +  |      |      |     |     |      |     |      |      |
| BLACK SWIFT                  |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| CHIPMNEY SWIFT               | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| VAUX'S SWIFT                 | +   |     |     |      |    | 1    | 1  |      |      |     |     |      |     |      |      |
| WHITE-THROATED SWIFT         | +   |     |     |      |    | 1    |    | 11   |      |     |     |      |     |      |      |
| BLACK-CHIN HUMMINGBIRD       | +   |     |     |      |    | 1    | 1  |      |      |     |     |      |     |      |      |
| GOSTA'S HUMMINGBIRD          | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| ANNA'S HUMMINGBIRD           | 1   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BROAD-TAIL HUMMINGBIRD       |     |     |     |      |    |      | 1  |      |      |     |     |      |     |      |      |
| RUFUS HUMMINGBIRD            | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| ALLEN'S HUMMINGBIRD          | 1   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| GALLOPE HUMMINGBIRD          |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BROAD-BILL HUMMINGBIRD       |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BELTED KINGFISHER            | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| YELLOW-SHAFFED FLICKER       |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| RED-SHAFFED FLICKER          | 2   | 1   | 4   | 3    | 4  | 2    | 1  | 1    | 3    | 2   | 8   | 4    | 3   | 3    | +    |
| GILDED FLICKER               |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| PILATED WOODPECKER           |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| CILA WOODPECKER              |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| RED-HEADED WOODPECKER        | 9   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| ACORN WOODPECKER             | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| LEWIS' WOODPECKER            | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| YELLOW-BELL SAPSUCKER        | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| WILLIAMSON'S SAPSUCKER       | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| HATRY WOODPECKER             | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| OSWAY WOODPECKER             | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| LADDER-BACK WOODPECKER       | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| NUTTALL'S WOODPECKER         | 2   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| WHITE-HEADED WOODPECKER      | +   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| BLACK-BACK 3-TOED WOODPECKER |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| NORTHERN 3-TOED WOODPECKER   |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |
| EASTERN KINGBIRD             | 8   | 6   | 4   | 1    | 1  | 13   | 7  | 1    | 8    | 1   | 1   | 2    | 7   | 3    | +    |
| WESTERN KINGBIRD             |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |

TABLE 2 AVERAGE NUMBER OF BIRDS PER ROUTE, IN WESTERN STATES AND PROVINCES, 1968

| NO. OF ROUTES<br>STATES | 28  | 14  | 14  | 14   | 13 | 12   | 14 | 10   | 07   | 09  | 10  | 06   | 16  | 02   | 05   | 03 |
|-------------------------|-----|-----|-----|------|----|------|----|------|------|-----|-----|------|-----|------|------|----|
|                         | CAL | NEV | ORE | WASH | BC | ARIZ | NM | UTAH | COLO | WYO | IDA | MONT | SAS | ALTA | ALAS |    |
| CASSIN'S KINGBIRD       |     |     |     |      |    | 6    | 4  |      | +    |     |     |      |     |      |      |    |
| WIED'S CR. FLYCATCHER   | 4   | 2   | 1   |      |    |      | 4  |      |      |     |     |      |     |      |      |    |
| ASH-THROAT FLYCATCHER   |     |     |     |      |    | 2    |    |      |      |     |     |      |     |      |      |    |
| CLIVAGEOUS FLYCATCHER   |     |     |     |      |    | 11   |    |      |      |     |     |      |     |      |      |    |
| EASTERN PHOEBE          |     |     |     |      |    | 1    |    |      |      |     |     |      |     |      |      |    |
| BLACK PHOEBE            | 1   | +   |     |      |    |      | 3  | +    |      |     | +   |      |     |      | 1    |    |
| SAY'S PHOEBE            | 1   | 1   | +   |      |    | 2    |    |      |      | 1   | +   |      |     |      |      |    |
| TRAILL'S FLYCATCHER     | +   |     | 9   |      | 16 | 4    |    |      |      | +   | 1   | 1    | 3   |      | 2    | 58 |
| LEAST FLYCATCHER        |     |     |     |      | 2  |      |    |      |      |     |     | 1    |     |      | 12   |    |
| HAMMOND'S FLYCATCHER    | +   |     | 1   |      | 1  | 7    |    |      |      |     | +   |      |     |      |      | 1  |
| DUSKY FLYCATCHER        |     |     |     |      | +  | 2    |    |      |      |     | +   |      |     |      |      |    |
| GRAY FLYCATCHER         |     |     |     |      | +  |      |    |      |      |     |     |      |     |      |      |    |
| WESTERN FLYCATCHER      | 4   |     | 3   |      | 3  | 1    |    | +    |      |     | +   |      |     |      | 1    |    |
| WESTERN WOOD PEWEE      | 5   |     | 6   |      | 9  | 7    | 1  | +    | 5    |     | 1   | 3    | 1   |      | 5    |    |
| CLIVE-SIDED FLYCATCHER  | 2   |     | 6   |      | 4  | 5    | +  | 1    |      |     | +   |      |     |      |      | 2  |
| VERMILION FLYCATCHER    |     |     |     |      |    |      | 1  |      |      |     |     |      |     |      |      |    |
| HORNED LARK             | 22  | 46  | 7   |      | 43 | 1    | 38 | 56   | 15   | 104 | 43  | 48   | 36  | 95   | 34   |    |
| VIOLET-GREEN SWALLOW    | 8   | +   | 6   |      | 13 | 4    | 7  | +    | 2    | 7   | 2   | 2    | +   |      | 1    |    |
| TREE SWALLOW            | 1   | 1   | 2   |      | 1  | 7    |    | +    | 1    | 1   | 2   | 1    | 3   | 7    | 4    | +  |
| BANK SWALLOW            |     |     |     |      | 17 | 11   |    | +    |      |     | 1   | 4    | 1   | 3    | 9    | 31 |
| ROUGH-WINGED SWALLOW    | 4   | 1   | 1   |      | 2  |      | 2  |      | +    | 1   | +   | 3    |     |      |      |    |
| BARN SWALLOW            | 2   | +   | 5   |      | 15 | 8    | +  | 5    | 3    | 4   | 2   | 16   | 5   | 12   | 2    |    |
| CLIFF SWALLOW           | 43  | 2   | 9   |      | 15 | 12   | 19 | 3    | 9    | 19  | 37  | 7    | 9   | 4    |      |    |
| PURPLE MARTIN           | 1   |     |     |      |    |      | 1  | +    |      |     |     |      |     |      | +    |    |
| GRAY JAY                |     |     | 1   |      |    | 1    |    |      |      |     | 1   |      |     |      |      | 8  |
| BLUE JAY                |     |     |     |      |    |      |    |      |      |     |     |      |     |      |      |    |
| STELLER'S JAY           | 3   |     | 5   |      | 2  | 1    | 2  | +    | 2    | 2   |     | 2    | 1   |      |      | 3  |
| SCRUB JAY               | 9   | +   | 1   |      |    |      | 1  | 3    | 10   | +   |     |      |     |      |      |    |
| MEXICAN JAY             |     |     |     |      |    |      | 3  |      |      |     |     |      |     |      |      |    |
| BLACK-BILLED MAGPIE     |     |     | 2   |      | 2  | +    |    | +    | 11   | 11  | 5   | 11   | 14  | 7    | 16   |    |
| YELLOW-BILLED MAGPIE    | 6   |     |     |      |    |      |    |      |      |     |     |      |     |      |      |    |
| COMMON RAVEN            | 8   | 1   | 2   |      | 2  | 2    | 15 | 2    | 7    |     | 3   | 4    | 1   |      |      | 2  |
| WHITE-NECKED RAVEN      |     |     |     |      |    |      | 2  | 3    |      |     |     |      |     |      |      |    |
| COMMON CROW             | 6   | +   | 8   |      | 13 | 12   | 1  | +    | 1    | 4   | 1   | 8    | 5   | 46   | 19   |    |
| NORTHWESTERN CROW       |     |     |     |      | 4  | 7    |    |      |      |     |     |      |     |      |      |    |
| PINYON JAY              | +   | 15  | +   |      |    |      | 39 | 10   | 7    | +   |     |      |     |      |      |    |
| CLARK'S NUTCRACKER      |     |     | 1   |      | +  |      |    |      | +    | +   | 1   | 1    | 1   |      |      |    |
| BLACK-CAPPED CHICKADEE  |     |     | 3   |      | 7  | 3    |    |      |      |     | 1   | 5    | 2   |      |      |    |
| MOUNTAIN CHICKADEE      | 1   |     |     |      | 2  | 2    | 2  |      | 5    | 1   | 1   |      | 1   |      |      |    |
| CHESTNUT-BKD CHICKADEE  | 7   |     | 1   |      | 4  | 2    |    |      |      |     |     |      |     |      |      |    |
| PLAIN TITMOUSE          | 4   |     |     |      |    |      | 3  | +    |      |     |     |      |     |      |      |    |
| BRIDLED TITMOUSE        |     |     |     |      |    |      | 1  |      |      |     |     |      |     |      |      |    |
| VERDIN                  | 1   |     |     |      |    |      | 8  |      |      |     |     |      |     |      |      |    |
| COMMON BUSHYIT          | 4   |     | 2   |      | +  |      | 1  | 1    |      |     |     |      |     |      |      |    |
| WHITE-BREASTED NUTHATCH | 2   |     | 1   |      | 1  | 1    | 1  | +    |      |     |     | 2    |     |      |      |    |
| RED-BREASTED NUTHATCH   | 1   |     | 7   |      | 4  | 4    | 3  | +    | 1    |     | +   |      | 1   |      |      |    |
| PYGMY NUTHATCH          | +   |     | +   |      | +  |      | +  |      |      |     |     | +    | +   |      |      | +  |
| BROWN CREEPER           | +   |     | +   |      | +  |      | +  |      |      |     |     | 1    | +   |      |      |    |
| WRENTIT                 | 6   |     | +   |      |    |      |    |      |      |     |     |      |     |      |      |    |
| DIPPER                  |     |     |     |      |    |      |    |      | 1    |     | 1   | +    |     |      |      |    |
| HOUSE WREN              | 2   | 1   | 1   |      | 1  | 1    | +  |      | +    | 1   | 1   | +    | 3   | 15   | 13   |    |





TABLE 2 AVERAGE NUMBER OF BIRDS PER ROUTE, IN WESTERN STATES AND PROVINCES, 1968

| NO. OF ROUTES<br>STATES | 28<br>CAL | 14<br>NEV | 14<br>URE | 13<br>WASH | 12<br>BC | 14<br>ARIZ | 10<br>NM | 07<br>UTAH | 09<br>COLO | 10<br>WYO | 06<br>IDA | 16<br>MONT | 02<br>SAS | 05<br>ALTA | 03<br>ALAS |
|-------------------------|-----------|-----------|-----------|------------|----------|------------|----------|------------|------------|-----------|-----------|------------|-----------|------------|------------|
| TOWNSEND'S WARBLER      | +         |           | 1         | 1          | 1        |            |          |            |            |           | 1         | 1          |           |            |            |
| PERMIT WARBLER          |           | 4         |           |            |          | 3          |          |            |            |           |           |            |           |            | +          |
| GRACE'S WARBLER         |           |           |           |            | 4        |            |          |            |            |           |           |            |           |            | +          |
| BLACKPOLL WARBLER       |           |           |           |            |          |            |          |            |            |           |           |            |           |            | 1          |
| DVENBIRD                |           |           |           |            |          |            |          |            |            |           |           |            |           |            |            |
| NORTHERN WATERTHRUSH    |           |           |           |            | 7        |            |          |            |            |           |           |            |           |            | +          |
| MOURNING WARBLER        |           |           |           |            |          |            |          |            |            |           |           |            |           |            | +          |
| MACGILLIVRAY'S WARBLER  |           |           | 2         | 5          | 13       |            |          |            | 1          | 1         | +         | 1          |           |            |            |
| YELLOWTHROAT            |           | +         | +         | 1          | 4        | +          |          |            |            | 1         |           | 3          | 1         |            | 4          |
| YELLOW-BREASTED CHAT    |           | +         | 3         | 1          |          | 3          |          |            | 1          |           | +         | 1          |           |            |            |
| RED-FACED WARBLER       |           |           |           |            |          | +          |          |            |            |           |           |            |           |            |            |
| WILSON'S WARBLER        | 4         |           | 2         | 6          | 9        |            |          |            | 1          | 1         | +         |            |           |            | 8          |
| AMERICAN RESTART        |           |           |           | +          | 9        |            |          |            |            |           |           |            |           |            | 1          |
| HOUSE SPARRAW           | 46        | 6         | 8         | 19         | 3        | 38         | 11       | 23         | 51         | 3         | 18        | 6          | 67        | 10         |            |
| BOBBLINK                |           |           |           |            | +        |            |          |            |            |           |           | +          | 1         |            |            |
| EASTERN MEADOWLARK      |           |           |           |            |          | 3          | 10       |            |            |           |           |            |           |            |            |
| WESTERN MEADOWLARK      | 34        | 34        | 34        | 8          | 2        | 3          | 38       | 10         | 82         | 106       | 30        | 112        | 43        | 15         |            |
| YELLOW-HEAD. BLACKBIRD  | 2         | 3         | 2         | +          | +        | +          |          | 1          | +          | 1         | 1         | 3          | 21        | 13         |            |
| RED-WINGED BLACKBIRD    | 62        | 17        | 9         | 2          | 6        | 203        | 2        | 1          | 31         | 22        | 29        | 27         | 19        | 106        |            |
| TRICLORED BLACKBIRD     | 10        |           |           |            |          |            |          |            |            |           |           |            |           |            |            |
| HOODEO ORIOLE           | +         |           |           |            |          | 1          | 2        |            |            |           |           |            |           |            |            |
| SCOTT'S ORIOLE          | 1         | 1         |           |            |          | 3          |          |            |            |           |           |            |           |            | 6          |
| BALTIMORE ORIOLE        |           |           |           |            |          |            |          |            |            |           |           |            | 1         |            |            |
| BULLOCK'S ORIOLE        | 5         | 1         | 1         | 1          | +        | +          | 1        | +          | 1          | 1         | 1         | 1          |           |            |            |
| RUSTY BLACKBIRD         |           |           |           |            | +        |            |          |            |            |           |           |            |           |            |            |
| BREWER'S BLACKBIRD      | 95        | 21        | 47        | 16         | 11       | 2          |          | 10         | 14         | 18        | 46        | 44         | 35        | 34         |            |
| BOAT-TAILED GRACKLE     |           |           |           |            |          | 1          |          |            |            |           |           |            |           |            |            |
| COMMON GRACKLE          |           |           |           |            |          |            |          | 5          | 2          | 6         | 1         | 1          | 3         | +          |            |
| BROWN-HEADED COWBIRD    | 2         | 1         | 7         | 8          | 6        | 14         | 2        | 1          | 1          | 2         | 1         | 6          | 33        | 24         |            |
| BRONZED COWBIRD         |           |           |           |            |          | 1          |          |            |            |           |           |            |           |            |            |
| WESTERN Tanager         | 2         |           | 7         | 7          | 8        |            | +        | 1          | 1          | 2         | 2         | 3          |           |            |            |
| HEPATIC Tanager         |           |           |           |            |          | +          |          |            |            |           |           |            |           |            |            |
| SUMMER Tanager          | +         |           |           |            |          | +          |          |            |            |           |           |            |           |            |            |
| CARDINAL                |           |           |           |            |          | 1          |          |            |            |           |           |            |           |            |            |
| PYRRHULOXIA             |           |           |           |            |          | +          |          |            |            |           |           |            |           |            |            |
| ROSE-BREASTED GROSBEAK  |           |           |           |            |          |            |          |            |            |           |           |            |           |            | 2          |
| BLACK-HEADED GROSBEAK   | 6         |           | 5         | 1          | +        | 2          | 1        | +          | 1          | +         |           | +          |           |            |            |
| BLUE GROSBEAK           |           | +         |           |            |          | 1          | 1        | +          | +          |           |           |            |           |            |            |
| LAZULI HUNTING          | 2         | +         | 3         | 1          | 2        | +          |          | 2          | +          | 1         | +         | 1          |           |            |            |
| VARIED HUNTING          |           |           |           |            |          | +          |          |            |            |           |           |            |           |            |            |
| EVENING GROSBEAK        |           |           | 3         | 9          | 2        |            |          |            |            |           |           | 10         |           |            |            |
| PURPLE FINCH            | 2         |           | 4         | 3          | 1        |            |          |            |            |           |           |            |           |            |            |
| CASSIN'S FINCH          | +         |           | 3         | 3          | 1        |            |          |            |            | +         | +         | +          |           |            |            |
| HOUSE FINCH             | 62        | 5         | 5         | 3          | 1        | 27         | 7        | 4          | 3          | +         | +         |            |           |            |            |
| PINE GROSBEAK           |           |           |           |            | +        |            |          | 1          |            | +         |           |            |           |            | 2          |
| BLACK RUSY FINCH        |           |           |           |            |          |            |          |            |            |           |           |            |           |            |            |
| COMMON REOPULL          |           |           |           |            |          |            |          |            |            |           |           |            |           |            |            |
| PINE SISKIN             | 4         |           | 2         | 9          | 24       | +          |          |            |            | 2         | 5         | 8          | 12        | 3          | 29         |
| AMERICAN GOLDFINCH      | 2         |           | 9         | 12         | 3        |            |          |            | +          | 1         | 2         | 2          |           |            |            |
| LESSER GOLDFINCH        | 8         |           | +         |            |          | 1          | 1        | +          |            |           |           |            |           |            |            |
| LAWRENCE'S GOLDFINCH    | 1         |           |           |            |          |            |          |            |            |           |           |            |           |            |            |

TABLE 2 AVERAGE NUMBER OF BIRDS PER ROUTE, IN WESTERN STATES AND PROVINCES, 1968

| NO. OF ROUTES<br>STATES | 26<br>CAL | 14<br>NEV | 14<br>ORE | 13<br>WASH | 12<br>BC | 14<br>ARIZ | 10<br>NM | 07<br>UTAH | 09<br>CALIF | 10<br>WYO | 06<br>IDA | 16<br>MONT | 02<br>SAS | 05<br>ALTA | 03<br>ALAS |
|-------------------------|-----------|-----------|-----------|------------|----------|------------|----------|------------|-------------|-----------|-----------|------------|-----------|------------|------------|
| RED CROSSBILL           |           |           | 2         | 7          | 2        |            |          |            |             | +         |           | 1          |           |            |            |
| GREEN-TAILED TOWHEE     | +         | 1         | 2         |            |          |            |          | +          | 3           | 2         | 1         | 1          |           |            |            |
| RUFUS-SIDED TOWHEE      | 6         | +         | 7         | 8          | 2        | 3          | +        | +          | +           | 1         | 1         | 1          |           |            |            |
| BROWN TOWHEE            | 8         |           |           |            |          | 3          | 2        |            | +           |           |           |            |           |            |            |
| ABERT'S TOWHEE          | +         |           |           |            |          | +          |          | 1          |             |           |           |            |           |            |            |
| LARK BUNTING            |           |           |           |            |          |            | +        |            | 93          | 137       |           | 48         | 37        |            |            |
| SAVANNAH SPARROW        | +         | +         | 1         | 3          | 2        | +          |          | +          | 1           | +         | +         | 3          | 3         | 8          |            |
| GRASSHOPPER SPARROW     |           |           |           | +          |          | +          |          |            | 6           | 3         | 2         | 1          |           |            |            |
| BAIRD'S SPARROW         |           |           |           |            |          |            |          |            |             |           |           | +          |           |            |            |
| LE CONTI'S SPARROW      |           |           |           |            |          |            |          |            |             |           |           |            |           | 4          |            |
| VESPER SPARROW          |           |           |           |            |          |            |          |            |             | 17        | 2         | 25         | 15        | 5          |            |
| LARK SPARROW            | 4         | 1         | 2         | +          | +        | 6          | 4        | 1          | 3           | 4         | 2         | 6          | 1         |            |            |
| RUFUS-CROWNED SPARROW   |           |           |           |            |          | +          | +        |            |             |           |           |            |           |            |            |
| CASSIN'S SPARROW        |           |           |           |            |          | 2          | 18       |            | +           |           |           |            |           |            |            |
| BLACK-THROATED SPARROW  | 8         | 21        |           |            |          | 33         | 3        |            |             |           |           |            |           |            |            |
| SAGE SPARROW            | +         | 25        | 2         |            |          | 1          |          | +          |             | +         |           |            |           | 1          | 25         |
| SLATE-COLLARED JUNCO    |           |           |           |            |          |            |          |            |             | 5         | 3         | 6          |           |            |            |
| OREGON JUNCO            | 5         |           | 8         | 8          | 9        | 2          |          |            | 3           |           |           |            |           |            |            |
| GRAY-HEADED JUNCO       |           |           |           |            |          |            |          |            |             |           |           |            |           |            |            |
| TREE SPARROW            |           |           |           |            |          |            |          |            |             |           |           |            |           |            |            |
| CHIPPING SPARROW        | 2         | +         | 7         | 3          | 14       | 2          | 1        | 3          | 1           | 5         | 4         | 5          | 1         | 5          | 2          |
| CLAY-COLLARED SPARROW   |           |           |           |            | +        |            |          |            |             | +         |           | 2          | 26        | 37         |            |
| BREWER'S SPARROW        |           | 5         | 2         | +          |          |            |          | 1          | +           | 8         | 9         | 10         |           | +          |            |
| BLACK-CHINNED SPARROW   | +         |           |           |            |          |            |          | +          |             |           |           |            |           |            |            |
| WHITE-CROWNED SPARROW   | 2         |           | 6         | 10         | 1        |            |          | 1          | +           | 3         | 1         | 2          |           | 1          | 29         |
| WHITE-THROATED SPARROW  |           |           |           |            | 1        |            |          |            |             |           |           |            |           | 13         |            |
| FOX SPARROW             | 1         |           | 1         | +          | +        |            |          | +          | +           | 1         |           |            |           | 17         |            |
| LINCOLN'S SPARROW       |           |           | +         |            | 2        |            |          | +          | 1           | 1         |           |            |           | 7          |            |
| SONG SPARROW            | 3         | 2         | 15        | 14         | 9        | +          |          | 5          | 1           | 1         | 2         | 4          | 4         | 29         |            |
| MCCOWN'S LONGSPUR       |           |           |           |            |          |            |          |            |             | +         |           | +          |           | +          |            |
| CHESTNUT-COLL. LONGSPUR |           |           |           |            |          |            |          |            |             |           |           | 1          | 6         | 40         |            |



TABLE 3 -- AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52  |    | 21  |     | 30  |    | 27 |     | 26 |    | 17  |     | 28  |     | 17  |    | 27  |     | 19   |     | 23  |     | 31 |  | 38 |  | 39 |  | 23 |  | 44 |  | 32 |  | 11 |  | 34 |  |  |
|-------------------------|-----|----|-----|-----|-----|----|----|-----|----|----|-----|-----|-----|-----|-----|----|-----|-----|------|-----|-----|-----|----|--|----|--|----|--|----|--|----|--|----|--|----|--|----|--|--|
|                         | TEX | LA | OKL | ARK | KAN | MO | IA | NEB | SD | ND | MIN | MAN | MIS | ALA | TEN | KY | ILL | IND | OHIO | WIS | MIC | ONT |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BLUE GOOSE              | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BLACK-BEL. TREE DUCK    | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| FULVUS TREF DUCK        | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| MALLARD                 | 67  | +  |     |     | 2   |    |    | 2   | 16 | 10 | 2   | 7   |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BLACK DUCK              | 67  | +  |     |     | 1   |    |    | 2   | 6  | 20 | 2   | 7   |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| MOTTLED DUCK            | 67  | 1  | 1   |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| GADWALL                 | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| PINTAIL                 | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| GREEN-WINGED TEAL       | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BLUE-WINGED TEAL        | 67  | +  |     |     | 5   | +  |    |     | 9  | 6  | 1   | 4   |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| AMERICAN WIGGLON        | 67  | +  |     |     | 2   |    |    |     | 5  | 13 | 1   | 1   |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| SHOVELER                | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| WOOD DUCK               | 67  | +  | 1   |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| REDFAD                  | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| RING-NECKED DUCK        | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| CANVASBACK              | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| LESSER SCAUP            | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| COMMON GULDFEYE         | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BUFFLEHEAD              | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| CLDSQUAK                | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| RUDDY DUCK              | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| FODDEC MORGANSER        | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| COMMON MORGANSER        | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| RED-BREAST. MORGANSER   | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| TURKEY VULTURE          | 67  | 13 | 2   | 4   | 2   | 2  | 2  | +   |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
| BLACK VULTURE           | 67  | 10 | 1   | 5   | 3   | 1  | 1  | +   |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
|                         | 67  | 1  | 1   | +   | 2   |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |  |    |  |    |  |    |  |    |  |    |  |    |  |    |  |  |











TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52  |    | 21  |     | 30  |    | 27 |     | 26 |    | 17  |    | 27 |     | 19 |    | 23  |    | 10 |     | 16  |     | 31  |     | 38 |    | 39 |    | 11 |    | 32 |    | 44 |      | 23  |     | 34 |    |    |   |
|-------------------------|-----|----|-----|-----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|----|----|-----|-----|-----|-----|-----|----|----|----|----|----|----|----|----|----|------|-----|-----|----|----|----|---|
|                         | TEX | LA | OKL | ARK | KAN | MO | IA | NEB | SD | IA | KAN | MO | IA | NEB | SD | IA | NEB | SD | IA | MIN | MAN | MIS | ALA | TEN | 31 | 38 | 39 | 23 | 11 | 32 | 44 | 23 | 34 | OHIO | MIS | ONT |    |    |    |   |
| SCISSOR-TAIL FLYCATCHER | 67  | 32 | 1   | 22  | 2   | 3  | +  |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | 24 | 1   | 22  | 2   | 3  |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| KISKADEE FLYCATCHER     | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| GT. CRESTED FLYCATCHER  | 67  | 1  | 3   | 7   | 5   | 2  | 2  | 1   | +  | 1  | 5   | 1  | 1  | 5   | 2  | 4  | 3   | 3  | 3  | 3   | 3   | 3   | 3   | 3   | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3    | 3   | 3   | 3  | 3  | 3  |   |
|                         | 68  | 1  | 3   | 6   | 4   | 3  | 6  | 1   | +  | 1  | 5   | 1  | 1  | 5   | 2  | 4  | 3   | 2  | 3  | 3   | 3   | 3   | 3   | 3   | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3  | 3    | 3   | 3   | 3  | 3  | 3  | 3 |
| WIED'S CR. FLYCATCHER   | 67  | 2  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | 1  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| ASH-TROOP FLYCATCHER    | 67  | 2  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | 2  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| EASTERN PHOENIX         | 67  | 1  | +   | 3   | 1   | 1  | 2  | 1   | +  | 1  | 1   | 1  | 1  | 1   | 3  | 4  | 1   | 1  | 1  | 1   | 1   | 1   | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1   | 1   | 1  | 1  | 1  |   |
|                         | 68  | +  | 2   | 2   | 1   | 2  | 2  | 1   | +  | 1  | 1   | 1  | 1  | 1   | 3  | 4  | 1   | 1  | 1  | 1   | 1   | 1   | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1   | 1   | 1  | 1  | 1  | 1 |
| SAY'S PHOENIX           | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| YELLOW-B. FLYCATCHER    | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| ACADIAN FLYCATCHER      | 67  | +  | 1   | +   | 2   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  | +  |   |
|                         | 68  | +  | +   | +   | 3   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  | +  |   |
| TRAIL'S FLYCATCHER      | 67  | +  | +   | +   | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  | +  |   |
|                         | 68  | +  | +   | +   | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  | +  |   |
| EAST FLYCATCHER         | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| WESTERN FLYCATCHER      | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| EASTERN WOOD PEWEE      | 67  | 1  | 3   | 2   | 7   | 2  | 4  | 2   | +  | +  | 2   | 1  | 4  | 6   | 7  | 9  | 3   | 4  | 4  | 4   | 4   | 4   | 4   | 4   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4    | 4   | 4   | 4  | 4  | 4  |   |
|                         | 68  | 2  | 3   | 2   | 6   | 1  | 5  | 1   | 3  | 1  | 2   | +  | 5  | 5   | 6  | 7  | 2   | 4  | 4  | 4   | 4   | 4   | 4   | 4   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4    | 4   | 4   | 4  | 4  | 4  |   |
| WESTERN WOOD PEWEE      | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| OLIVE-SIDED FLYCATCHER  | 67  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| VERMILION FLYCATCHER    | 67  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| FURNED LARK             | 67  | 5  | 2   | 1   | 29  | 5  | 21 | 29  | 33 | 74 | 4   | 29 | 1  | 1   | 1  | 3  | 40  | 15 | 12 | 5   | 5   | 1   | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1   | 1   | 1  | 1  | 1  |   |
|                         | 68  | 6  | 2   | 1   | 15  | 6  | 14 | 19  | 32 | 59 | 2   | 26 | +  | 1   | 1  | 2  | 51  | 15 | 10 | 2   | 2   | 5   | 4   | 4   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4    | 4   | 4   | 4  | 4  | 4  |   |
| VIOLET-GREEN SWALLOW    | 67  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| TREE SWALLOW            | 67  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| BANK SWALLOW            | 67  | 2  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | 1  |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| ROUGH-WINGED SWALLOW    | 67  | +  | 1   | 1   | +   | 1  | 1  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  |    |   |
|                         | 68  | +  | 1   | 2   | 2   | 1  | 1  | +   | 1  | +  | 1   | +  | +  | +   | +  | +  | +   | +  | +  | +   | +   | +   | +   | +   | +  | +  | +  | +  | +  | +  | +  | +  | +  | +    | +   | +   | +  | +  |    |   |
| BARN SWALLOW            | 67  | 3  | +   | 14  | 6   | 15 | 31 | 17  | 12 | 11 | 12  | 7  | 12 | 3   | 6  | 23 | 26  | 19 | 12 | 12  | 12  | 9   | 42  | 12  | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12 | 12   | 12  | 12  | 12 | 12 | 12 |   |
|                         | 68  | 1  | +   | 15  | 7   | 25 | 33 | 21  | 16 | 13 | 13  | 11 | 13 | 4   | 4  | 23 | 28  | 27 | 12 | 14  | 16  | 17  | 17  | 14  | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14 | 14   | 14  | 14  | 14 | 14 |    |   |
| CLIFF SWALLOW           | 67  | 28 |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  | 15 |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
| PURPLE MARTIN           | 67  | 7  | 20  | 2   | 9   | 1  | 6  | 4   | +  | 1  | +   | 5  | 1  | 12  | 22 | 5  | 9   | 4  | 8  | 6   | 3   | 1   | 1   | 1   | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1  | 1    | 1   | 1   | 1  |    |    |   |
|                         | 68  | 4  | 26  | 4   | 9   | 1  | 4  | 3   | +  | 1  | 4   | 2  | 2  | 7   | 26 | 5  | 4   | 8  | 7  | 3   | 4   | 4   | 4   | 4   | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4  | 4    | 4   | 4   | 4  | 4  |    |   |
| GRAY JAY                | 67  |    |     |     |     |    |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |
|                         | 68  |    |     |     |     | </ |    |     |    |    |     |    |    |     |    |    |     |    |    |     |     |     |     |     |    |    |    |    |    |    |    |    |    |      |     |     |    |    |    |   |



TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52  | 21 | 30  | 27  | 26  | 17 | 28 | 17  | 27 | 19 | 23  | 10  | 16  | 31  | 38  | 39 | 23  | 11  | 32   | 44  | 23  | 34  |     |
|-------------------------|-----|----|-----|-----|-----|----|----|-----|----|----|-----|-----|-----|-----|-----|----|-----|-----|------|-----|-----|-----|-----|
|                         | TEX | LA | OKL | ARK | KAN | MO | IA | NEB | SD | ND | MIN | MAN | MIS | ALA | TEN | KY | ILL | IND | OHIO | WIS | MIC | ONT |     |
| COCKINGBIRD             | 67  | 77 | 37  | 31  | 23  | 12 | 13 | +   | 1  | +  | +   |     | 52  | 52  | 30  | 19 | 4   | 5   | 3    |     |     |     |     |
|                         | 68  | 64 | 42  | 29  | 25  | 12 | 14 | +   | 1  | +  | +   |     | 35  | 50  | 25  | 19 | 5   | 7   | 4    |     |     |     |     |
| CATBIRD                 | 67  | +  | +   | +   | 1   | 1  | 3  | 3   | 2  | 1  | 4   | 3   | +   | 3   | 4   | 8  | 5   | 5   | 5    | 7   | 4   | 2   |     |
|                         | 68  | +  | +   | +   | 1   | 1  | 3  | 3   | 1  | 2  | 5   | 4   | 1   | 2   | 4   | 7  | 4   | 4   | 4    | 8   | 5   | 3   |     |
| BROWN THRASHER          | 67  | +  | 2   | 3   | 4   | 10 | 8  | 7   | 14 | 4  | 4   | 2   | 8   | 8   | 6   | 5  | 12  | 5   | 4    | 5   | 5   | 12  |     |
|                         | 68  | +  | 2   | 3   | 5   | 9  | 11 | 9   | 9  | 4  | 3   | 2   | 5   | 7   | 6   | 6  | 7   | 6   | 4    | 4   | 4   | 3   |     |
| LONG-BILLED THRASHER    | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | 3  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| CURVE-BILLED THRASHER   | 67  | 2  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | 2  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| ROBIN                   | 67  | +  | +   | 3   | 4   | 7  | 16 | 26  | 17 | 8  | 5   | 25  | 8   | 5   | 7   | 10 | 27  | 33  | 26   | 38  | 36  | 42  | 50  |
|                         | 68  | +  | +   | 3   | 5   | 9  | 19 | 32  | 21 | 9  | 6   | 28  | 11  | 5   | 6   | 10 | 27  | 32  | 25   | 43  | 35  | 44  | 42  |
| WOOD THRUSH             | 67  | 1  | 4   | +   | 7   | 2  |    |     |    |    | +   |     |     | 8   | 16  | 8  | 10  | 1   | 4    | 5   | 2   | 2   | 3   |
|                         | 68  | +  | 6   | +   | 7   | +  | 2  |     |    |    | +   |     |     | 11  | 12  | 8  | 9   | 1   | 2    | 4   | 2   | 2   | 2   |
| HERMIT THRUSH           | 67  |    |     |     |     |    |    |     |    |    | 1   | 1   |     |     |     |    |     |     | +    | 1   | 3   |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    | 2   |     |     |     |     |    |     |     | +    | 2   | 2   |     | 1   |
| SWAINSON'S THRUSH       | 67  |    |     |     |     |    |    |     |    |    | +   |     |     |     |     |    |     |     |      |     |     |     | 1   |
|                         | 68  |    |     |     |     |    |    |     |    |    | +   | 5   |     |     |     |    |     |     |      | +   |     |     | 2   |
| VEERY                   | 67  |    |     |     |     |    |    |     |    |    | 1   | 11  | 1   |     |     |    |     |     |      | +   | 7   | 5   | 2   |
|                         | 68  |    |     |     |     |    |    |     |    |    | 1   | 14  | 1   |     |     |    |     |     |      | +   | 7   | 4   | 11  |
| EASTERN BLUEBIRD        | 67  | 2  | 3   | 13  | 6   | 2  | 6  | 1   | 1  | +  | 1   | +   |     | 3   | 6   | 8  | 14  | 2   | 6    | 5   | 2   | 2   | +   |
|                         | 68  | 2  | 2   | 9   | 5   | 2  | 10 | 1   | +  | +  | 2   |     |     | 2   | 4   | 6  | 14  | 2   | 5    | 4   | 2   | 2   | 1   |
| MOUNTAIN BLUEBIRD       | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     | +   |     |     |     |    |     |     |      |     |     |     |     |
| BLUE-GRAY Gnatcatcher   | 67  | 1  | 1   | 3   | 4   | 1  | 1  |     |    |    |     |     |     | 1   | 1   | 3  | 3   | +   | 1    | 2   |     |     | +   |
|                         | 68  | 1  | 2   | 2   | 2   | 1  | 3  |     |    |    |     |     |     | 2   | 2   | 2  | 4   | +   | 2    | 2   |     |     |     |
| BLACK-TAIL Gnatcatcher  | 67  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| GOLDEN-CROWNED KINGLET  | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| RUBY-CROWNED KINGLET    | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| SPRAGUE'S PIPIT         | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| CEDAR WAXING            | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | +  | 1   |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| LOGSKRUEAL SHRIKE       | 67  | 3  | 6   | 7   | 3   | 8  | 4  | 1   | 2  | 1  | +   | +   | 1   | 4   | 4   | 3  | 1   | 1   |      | 2   | 4   | 6   | +   |
|                         | 68  | 4  | 4   | 6   | 3   | 8  | 4  | 1   | 1  | 1  | +   | +   | 1   | 4   | 3   | 3  | 1   | 1   |      | 2   | 7   | 5   | 4   |
| STARLING                | 67  | 3  | 20  | 17  | 19  | 12 | 45 | 37  | 13 | 4  | 9   | 24  | 3   | 16  | 29  | 49 | 76  | 125 | 134  | 144 | 57  | 81  | 221 |
|                         | 68  | 3  | 14  | 11  | 18  | 21 | 38 | 64  | 11 | 6  | 4   | 32  | 6   | 12  | 23  | 54 | 75  | 91  | 79   | 161 | 67  | 104 | 115 |
| BLACK-CAPPED VIREO      | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| WHITE-EYED VIREO        | 67  | 2  | 6   | 1   | 6   | 1  | 1  |     |    |    |     |     |     | 7   | 10  | 5  | 4   | 1   | 1    | 1   |     |     | +   |
|                         | 68  | 2  | 10  | 1   | 7   | 3  |    |     |    |    |     |     |     | 10  | 8   | 4  | 5   | 1   | 1    | 1   |     |     |     |
| BELL'S VIREO            | 67  | 2  | 5   | 1   | 1   | +  |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | 2  | 4   | +   | 1   | +  |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| GRAY VIREO              | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | +  |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
| YELLOW-THROATED VIREO   | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  | +  | 1   | +   | 1   | 1  | 1  | +   |    |    |     |     |     | 1   | 1   | 1  | 1   | +   | 1    | 1   | 1   | +   | +   |
| SCLITARY VIREO          | 67  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |
|                         | 68  |    |     |     |     |    |    |     |    |    |     |     |     |     |     |    |     |     |      |     |     |     |     |



TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52<br>TEX | 21<br>LA | 30<br>OKL | 27<br>ARK | 26<br>KAN | 17<br>MO  | 28<br>IA   | 17<br>NEB  | 27<br>SD   | 19<br>ND   | 23<br>MIN  | 10<br>MAN | 16<br>MIS | 31<br>ALA | 38<br>TEN | 39<br>KY | 23<br>ILL  | 11<br>IND  | 32<br>OHIO | 44<br>WIS  | 23<br>MIC  | 34<br>ONT  |          |
|-------------------------|-----------|----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|------------|-----------|-----------|-----------|-----------|----------|------------|------------|------------|------------|------------|------------|----------|
| PINE WARBLER            | 67<br>68  | 1<br>4   | 1<br>6    | 1<br>3    | 4<br>3    | +         |            |            |            |            |            |           | 1<br>3    | 3<br>5    | +         | +        |            |            |            | +          | +          |            | +        |
| PRAIRIE WARBLER         | 67<br>68  | +        | 1<br>3    | 3<br>2    | +         | +         |            | +          |            |            |            |           | +         | 5<br>4    | 4<br>2    | 2<br>2   |            |            | 1<br>1     |            |            |            |          |
| PALM WARBLER            | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| CVENBIRD                | 67<br>68  |          |           | 2<br>2    | +         | +         | +          | 1<br>1     |            | +          | 10<br>10   | +         | 1<br>2    | 1<br>2    | 2<br>2    | 1<br>1   | +          | +          | 1<br>+     | 12<br>14   | 11<br>8    | 2<br>8     |          |
| NORTHERN WATERTHRUSH    | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| LOUISIANA WATERTHRUSH   | 67<br>68  |          |           | +         | +         | +         |            |            |            |            |            |           |           |           | +         | 1        |            |            |            |            |            |            |          |
| KENTUCKY WARBLER        | 67<br>68  | +        | 1<br>2    | 4<br>4    | +         | +         |            |            |            |            |            |           | 1<br>2    | 2<br>2    | 3<br>2    | 2<br>2   |            |            | +          |            |            |            |          |
| CONNECTICUT WARBLER     | 67<br>68  |          |           | 4<br>+    | +         | 1         |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| MOURNING WARBLER        | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| YELLOWTHROAT            | 67<br>68  |          | 5<br>8    | 2<br>3    | 7<br>9    | 1<br>1    | 19<br>28   | 4<br>3     | 6<br>5     | 14<br>12   | 16<br>20   | 2<br>2    | 8<br>10   | 10<br>9   | 13<br>16  | 15<br>18 | 6<br>8     | 12<br>8    | 8<br>10    | 14<br>14   | 7<br>8     | 10<br>8    |          |
| YELLOW-BREASTED CHAT    | 67<br>68  | 2<br>2   | 8<br>10   | 2<br>2    | 13<br>15  | +         | +          |            | +          |            |            |           | 9<br>12   | 24<br>21  | 17<br>17  | 21<br>22 | 1<br>1     | 7<br>7     | 8<br>7     |            |            |            |          |
| HOODED WARBLER          | 67<br>68  | 1<br>1   | +         | 2<br>+    | 6<br>1    |           |            |            |            |            |            |           | +         | 2<br>1    | 1<br>1    | +        | +          | +          |            |            |            |            |          |
| CANADA WARBLER          | 67<br>68  |          |           | 1<br>+    | 1<br>+    |           |            |            |            | 1<br>+     |            |           |           |           |           |          |            |            |            |            |            |            |          |
| AMERICAN REDSTART       | 67<br>68  |          |           | 1<br>1    | +         | +         | +          | +          | +          | 2<br>2     |            |           | +         | 1<br>2    | 1<br>1    | 2<br>1   | +          | +          | 1<br>2     | 2<br>3     | 2<br>2     |            |          |
| HOUSE SPARROW           | 67<br>68  | 88<br>69 | 55<br>58  | 47<br>41  | 59<br>47  | 106<br>87 | 130<br>103 | 134<br>159 | 57<br>106  | 23<br>24   | 29<br>28   | 38<br>34  | 16<br>23  | 29<br>29  | 47<br>36  | 77<br>69 | 245<br>268 | 228<br>217 | 176<br>203 | 110<br>70  | 64<br>78   | 40<br>49   |          |
| EUROPEAN TREE SPARROW   | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            | 1<br>1     |            |            |            |            |          |
| BOBOLINK                | 67<br>68  |          |           |           |           | +         | 12<br>11   | 2<br>1     | 3<br>3     | 27<br>15   | 7<br>9     | 4<br>5    |           |           |           |          |            | 7<br>6     | 4<br>3     | 5<br>5     | 16<br>13   | 12<br>12   | 19<br>23 |
| EASTERN MEADOWLARK      | 67<br>68  | 43<br>41 | 35<br>33  | 52<br>59  | 29<br>31  | 38<br>50  | 43<br>48   | 16<br>20   | 14<br>11   | 4<br>7     | 4<br>7     | 5<br>5    | 40<br>36  | 32<br>27  | 45<br>43  | 64<br>67 | 55<br>55   | 32<br>37   | 39<br>39   | 16<br>11   | 17<br>18   | 20<br>22   |          |
| WESTERN MEADOWLARK      | 67<br>68  | 5<br>8   | 19<br>27  | 19<br>67  | 115<br>67 | 10<br>5   | 97<br>93   | 96<br>108  | 215<br>218 | 123<br>123 | 36<br>38   | 38<br>48  |           |           |           | +        | 12<br>8    | 2<br>2     | +          | 31<br>27   | 2<br>3     |            |          |
| YELLOW-HEADED BLACKBIRD | 67<br>68  |          |           |           | 2<br>10   |           | +          | 2<br>3     | 14<br>7    | 10<br>33   | 6<br>3     | 2<br>+    |           |           |           |          |            |            |            |            |            |            |          |
| RED-WINGED BLACKBIRD    | 67<br>68  | 33<br>52 | 92<br>81  | 23<br>28  | 48<br>71  | 65<br>72  | 84<br>70   | 165<br>161 | 88<br>78   | 137<br>115 | 174<br>139 | 68<br>75  | 83<br>67  | 32<br>54  | 37<br>39  | 28<br>30 | 51<br>48   | 183<br>150 | 203<br>191 | 235<br>316 | 126<br>116 | 105<br>101 | 71<br>66 |
| ORCHARD ORIOLE          | 67<br>68  | 5<br>7   | 10<br>17  | 8<br>7    | 11<br>11  | 6<br>9    | 2<br>5     | +          | 3<br>2     | 1<br>+     |            |           | 10<br>9   | 13<br>13  | 9<br>8    | 8<br>7   | +          | 1<br>1     | 1<br>+     |            |            |            |          |
| BLACK-HEADED ORIOLE     | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| HOODED ORIOLE           | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| SCOTT'S ORIOLE          | 67<br>68  |          |           |           |           |           |            |            |            |            |            |           |           |           |           |          |            |            |            |            |            |            |          |
| BALTIMORE ORIOLE        | 67<br>68  | +        | 1<br>1    | 2<br>4    | 3<br>2    | 9<br>11   | 2<br>3     | 4<br>6     | 4<br>5     | 1<br>2     | 2<br>4     | 4<br>2    | 1<br>2    | +         | +         | 1<br>+   | 1<br>3     | 1<br>1     | 3<br>3     | 6<br>6     | 6<br>3     | 4<br>6     | 12<br>6  |

TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52       | 21       | 30       | 27       | 26       | 17       | 28       | 17       | 27       | 19       | 23       | 10       | 16       | 31       | 38       | 39         | 23         | 11       | 32       | 44       | 23       | 34       |
|-------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|------------|------------|----------|----------|----------|----------|----------|
|                         | TEX      | LA       | OKL      | ARK      | KAN      | MO       | IA       | NEB      | SD       | NO       | MIN      | MAN      | MIS      | ALA      | TEN      | KY         | ILL        | IND      | OHIO     | WIS      | MIC      | ONT      |
| BULLOCK'S ORIOLE        | 67<br>68 | 2<br>2   | 1<br>1   | 1<br>+   | 1<br>+   |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| RUSTY BLACKBIRD         | 67<br>68 |          |          |          |          |          |          |          |          |          |          | 1        |          |          |          |            |            |          |          |          | 1        | +        |
| BREWER'S BLACKBIRD      | 67<br>68 | +        |          |          |          |          | +        | +        | 3        | 4        | 5        | 14       |          |          |          |            |            |          |          | 2        | 1        | +        |
| BCAT-TAILED GRACKLE     | 67<br>68 | 16<br>33 | 9<br>2   | +        | +        |          |          |          |          |          |          |          |          | +        |          |            |            |          |          |          |          |          |
| COMMON GRACKLE          | 67<br>68 | 3<br>2   | 78<br>84 | 4<br>6   | 27<br>28 | 31<br>46 | 62<br>81 | 44<br>67 | 55<br>64 | 16<br>15 | 39<br>49 | 3<br>2   | 51<br>77 | 51<br>42 | 81<br>96 | 150<br>164 | 138<br>131 | 67<br>82 | 83<br>99 | 39<br>43 | 46<br>55 | 62<br>57 |
| BROWN-HEADED COWBIRD    | 67<br>68 | 26<br>18 | 15<br>11 | 29<br>30 | 14<br>12 | 31<br>49 | 14<br>14 | 31<br>29 | 35<br>26 | 61<br>33 | 12<br>12 | 20<br>29 | 6<br>12  | 9<br>8   | 9<br>8   | 17<br>12   | 10<br>12   | 11<br>12 | 12<br>11 | 20<br>19 | 28<br>20 | 16       |
| BRONZED COWBIRD         | 67<br>68 | 2<br>1   |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| WESTERN Tanager         | 67<br>68 |          |          |          |          |          |          |          | 1<br>1   |          |          |          |          |          |          |            |            |          |          |          |          |          |
| SCARLET Tanager         | 67<br>68 |          |          |          |          |          | +        |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| SUMMER Tanager          | 67<br>68 | 2<br>1   | 4<br>4   | 2<br>2   | 5<br>4   | +        | +        |          |          |          |          |          | 4<br>8   | 6<br>6   | 5<br>4   | 4<br>5     | +          | +        | 1<br>1   | 2<br>2   | 1<br>1   | 1        |
| CARDINAL                | 67<br>68 | 38<br>29 | 39<br>46 | 23<br>21 | 53<br>32 | 15<br>14 | 33<br>32 | 7<br>9   | 4<br>2   | 1<br>1   |          |          | 41<br>40 | 54<br>52 | 38<br>39 | 44<br>40   | 19<br>18   | 20<br>20 | 16<br>16 | 4<br>3   | 4<br>6   | 1        |
| PYRRHULOXIA             | 67<br>68 | 15<br>11 |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| ROSE-BREASTED GRUSBEAK  | 67<br>68 |          |          |          |          |          | 2<br>3   | 1<br>1   | +        | 4<br>5   | 2<br>2   |          |          |          |          |            |            |          |          |          |          |          |
| BLACK-HEADED GRUSBEAK   | 67<br>68 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| BLUE GRUSBEAK           | 67<br>68 | 2<br>2   | 1<br>1   | 4<br>4   | 2<br>2   | 3<br>3   | 1<br>+   | 1<br>+   |          |          |          |          | 3<br>3   | 7<br>6   | 1<br>2   | +          | +          |          |          |          |          |          |
| INDIGO BUNTING          | 67<br>68 | 2<br>2   | 6<br>8   | 9<br>9   | 21<br>20 | 3<br>3   | 18<br>20 | 4<br>5   | 1<br>+   | +        | 2<br>3   |          | 13<br>14 | 32<br>29 | 44<br>41 | 60<br>53   | 14<br>16   | 24<br>26 | 15<br>14 | 10<br>8  | 9<br>10  | 2        |
| LAZULI BUNTING          | 67<br>68 |          |          |          |          |          |          |          |          | 1<br>1   |          |          |          |          |          |            |            |          |          |          |          |          |
| VARIED BUNTING          | 67<br>68 | +        |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| PAINTED BUNTING         | 67<br>68 | 26<br>19 | 6<br>5   | 13<br>9  | 1<br>1   |          |          |          |          |          |          |          | 1<br>1   |          |          |            |            |          |          |          |          |          |
| DICKCISSIL              | 67<br>68 | 6<br>21  | 4<br>6   | 33<br>41 | 16<br>11 | 70<br>64 | 44<br>33 | 99<br>86 | 54<br>37 | 41<br>25 | 12<br>5  | 12<br>10 | 7<br>3   | 1<br>2   | 4<br>2   | 9<br>5     | 64<br>44   | 17<br>10 | 1<br>+   | 16<br>8  | 1<br>+   | +        |
| EVENING GRUSBEAK        | 67<br>68 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| PURPLE FINCH            | 67<br>68 |          |          |          |          |          |          |          |          | 1<br>1   |          | +        |          |          |          |            |            |          |          |          |          |          |
| HOUSE FINCH             | 67<br>68 | 3<br>2   |          |          |          |          |          |          |          |          |          | 1<br>+   |          |          |          |            |            |          |          |          |          |          |
| COMMON REDPOLL          | 67<br>68 |          |          |          |          |          |          |          |          |          |          | 1        |          |          |          |            |            |          |          |          |          |          |
| PINE SISKIN             | 67<br>68 |          |          |          |          |          |          |          |          |          |          |          |          |          |          |            |            |          |          |          |          |          |
| AMERICAN GOLDFINCH      | 67<br>68 | +        | +        | 1        | 2        | 2        | 7        | 6        | 16       | 3        | 4        | 9        | 10       | 10       | 11       | 11         | 12         | 9        | 15       | 12       | 16       | 22       |

TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52  |    | 21  |     | 30  |    | 27 |    | 26 |    | 17  |     | 28  |     | 17  |    | 27  |     | 19   |     | 23  |     | 31 |   | 38 |   | 39 |   | 11 |   | 23 |   | 34 |   |  |
|-------------------------|-----|----|-----|-----|-----|----|----|----|----|----|-----|-----|-----|-----|-----|----|-----|-----|------|-----|-----|-----|----|---|----|---|----|---|----|---|----|---|----|---|--|
|                         | TEX | LA | OKL | ARK | KAN | MO | IA | NE | SD | ND | MIN | MAN | MIS | ALA | TEN | KY | ILL | IND | OHIO | WIS | MIC | ONT |    |   |    |   |    |   |    |   |    |   |    |   |  |
| LESSER GOLDFINCH        | 67  | 1  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| LAWRENCE'S GOLDFINCH    | 68  | 1  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| RED CROSSBILL           | 67  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| CLIVE SPARRROW          | 68  |    |     |     |     |    |    | 10 |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| RUFOUS-SIDED TOWHEE     | 67  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| BROWN TOWHEE            | 68  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| LARK BUNTING            | 67  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| SAVANNAH SPARRROW       | 68  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| GRASSHOPPER SPARRROW    | 67  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| BIRD'S SPARRROW         | 68  | +  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| LE CONTE'S SPARRROW     | 67  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| HENSLOW'S SPARRROW      | 68  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| SHARP-TAILED SPARRROW   | 67  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| SEASIDE SPARRROW        | 68  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| VESPER SPARRROW         | 67  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| LARK SPARRROW           | 68  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| RUFOUS-WINGED SPARRROW  | 67  | 30 | 1   | 17  | 1   | 6  | 1  | +  | 2  | 1  | +   | +   | +   | +   | +   | +  | +   | +   | +    | +   | +   | +   | +  | + | +  | + | +  | + | +  | + | +  | + | +  | + |  |
| RUFOUS-CROWNED SPARRROW | 68  | 21 | 15  | 1   | 4   | 1  | +  | +  | 3  | 2  | 1   | +   | +   | +   | +   | +  | +   | +   | +    | +   | +   | +   | +  | + | +  | + | +  | + | +  | + | +  | + | +  | + |  |
| BACHMAN'S SPARRROW      | 67  | 1  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| CASSIN'S SPARRROW       | 68  | 1  |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| BLACK-THROATED SPARRROW | 67  | 10 |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| WHITE-WINGED JUNCO      | 68  | 11 |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| SLATE-COLORED JUNCO     | 67  | 18 |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| CHIPPING SPARRROW       | 68  | 20 |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| CLAY-COLORED SPARRROW   | 67  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |
| BREWER'S SPARRROW       | 68  |    |     |     |     |    |    |    |    |    |     |     |     |     |     |    |     |     |      |     |     |     |    |   |    |   |    |   |    |   |    |   |    |   |  |



TABLE 3 - AVERAGE NUMBER OF BIRDS PER ROUTE, IN CENTRAL STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 52       | 21     | 30     | 27       | 26     | 17     | 28       | 17     | 27     | 19       | 23       | 10       | 16     | 31       | 38       | 39       | 23       | 11       | 32       | 44       | 23       | 34       |        |
|-------------------------|----------|--------|--------|----------|--------|--------|----------|--------|--------|----------|----------|----------|--------|----------|----------|----------|----------|----------|----------|----------|----------|----------|--------|
|                         | TEX      | LA     | OKL    | ARK      | KAN    | MO     | IA       | NEB    | SO     | ND       | MIN      | MAN      | MIS    | ALA      | TEN      | KY       | ILL      | IND      | OHIO     | MIS      | MIC      | ONT      |        |
| FIELD SPARROW           | 67<br>68 | 3<br>2 | 1<br>+ | 23<br>20 | 9<br>8 | 5<br>5 | 22<br>22 | 3<br>5 | 4<br>1 | 1<br>1   | 2<br>1   |          | 1<br>1 | 14<br>11 | 23<br>18 | 39<br>34 | 12<br>16 | 21<br>17 | 19<br>17 | 8<br>6   | 7<br>10  | 2<br>2   |        |
| WHITE-THROATED SPARROW  | 67<br>68 |        |        |          |        |        |          |        |        | 7<br>7   | 3<br>1   |          |        |          |          |          |          |          |          | 2<br>5   | 4<br>4   | +        |        |
| LINCOLN'S SPARROW       | 67<br>68 |        |        |          |        |        |          |        |        |          |          |          |        |          |          |          |          |          |          |          |          |          |        |
| SWAMP SPARROW           | 67<br>68 |        |        |          |        |        |          |        |        |          | 1<br>2   |          |        |          |          |          | +        |          |          |          | 1<br>1   | 1<br>+   | 1<br>2 |
| SONG SPARROW            | 67<br>68 |        |        |          |        |        |          |        | 2      | 4<br>4   | 15<br>22 | 12<br>17 |        |          | 4<br>5   | 11<br>10 | 17<br>18 | 37<br>35 | 38<br>39 | 28<br>26 | 36<br>46 | 27<br>30 |        |
| MCCOWN'S LONGSPUR       | 67<br>68 |        |        |          |        |        |          |        |        |          |          |          |        |          |          |          |          |          |          |          |          |          |        |
| CHESTNUT-COL. LONGSPUR  | 67<br>68 |        |        |          |        |        |          |        |        | 34<br>25 |          | +        |        |          |          |          |          |          |          |          |          |          |        |

TABLE 4. AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES IN 1968<br>STATES | 29  |    | 10 |    | 11 |     | 21 |     | 23 |    | 10 |     | 40  |    | 09 |    | 08 |    | 43  |    | 01  |  | 06 |  | 16 |  | 04 |  | 21 |  | 16 |  |  |  |  |  |
|---------------------------------|-----|----|----|----|----|-----|----|-----|----|----|----|-----|-----|----|----|----|----|----|-----|----|-----|--|----|--|----|--|----|--|----|--|----|--|--|--|--|--|
|                                 | FLA | GA | SC | NC | VA | DEL | MD | WVA | NJ | PA | RI | CON | MAS | NY | VT | NH | ME | NS | PEI | NB | QUE |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| COMMON LOON                     | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| PIED-BILLED GREBE               | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| BROWN PELICAN                   | 67  | 1  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| GANNET                          | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| DOUBLE-CR. CURMURANT            | 67  | 3  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 1  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| ANHINGA                         | 67  | 1  | +  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 1  | 2  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| MAGNIF. FRIGATEBIRD             | 67  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| GREAT WHITE HERON               | 67  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| GREAT BLUE HERON                | 67  | 2  | +  | +  | +  | +   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 1  | 1  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| GREEN HERON                     | 67  | 2  | 1  | 1  | 1  | 1   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 3  | 1  | 2  | 1  | 1   | 1  | 1   |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| LITTLE BLUE HERON               | 67  | 3  | 2  | 1  | 1  | 1   | 1  | 1   |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 3  | 3  | 2  | 1  | 1   | 1  | 1   |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| CATTLE EGRET                    | 67  | 53 | 12 | 4  | 3  | 1   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 39 | 3  | 3  | 4  | 2   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| REDDISH EGRET                   | 67  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| COMMON EGRET                    | 67  | 5  | 7  | 1  | +  | +   | +  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 5  | 4  | 1  | +  | 1   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| SNOWY EGRET                     | 67  | 3  | 3  | 1  | 1  | 1   | 1  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 4  | +  | 1  | +  | +   | +  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| LOUISIANA HERON                 | 67  | 1  | +  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 1  | 1  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| BLACK-CR. NIGHT HERON           | 67  | +  | +  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| YELLOW-CR. NT. HERON            | 67  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| LEAST BITTERN                   | 67  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| AMERICAN BITTERN                | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| WOOD IBIS                       | 67  | 1  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | +  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| GLOSSY IRIS                     | 67  | 3  |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 1  | 1  | +  | +  | 1   | +  |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| WHITE IBIS                      | 67  | 17 | +  | 1  |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  | 23 | 6  | 6  | +  |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| MUTE SWAN                       | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
| CANADA GOOSE                    | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |
|                                 | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |  |  |  |  |





TABLE 4 AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 29       | 10 | 11 | 21 | 23 | 10  | 40 | 09  | 08 | 43  | 01 | 06  | 16  | 90 | 17 | 22 | 06 | 20 | 04  | 21 | 16  |
|-------------------------|----------|----|----|----|----|-----|----|-----|----|-----|----|-----|-----|----|----|----|----|----|-----|----|-----|
|                         | FLA      | GA | SC | NC | VA | DEL | MD | WVA | NJ | PA  | RI | CON | MAS | NY | VT | NH | ME | NS | PEI | NB | QUE |
| SPOTTED SANDPIPER       | 67<br>68 |    |    | +  | +  | +   |    | +   | +  | +   |    | +   | +   | 1  | 1  | +  |    | 1  | +   | 1  | 1   |
| SOLITARY SANDPIPER      | 67<br>68 |    |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| WILLET                  | 67<br>68 | +  |    | +  | +  | 5   | +  |     |    |     |    |     |     |    |    |    |    | 3  |     |    |     |
| GREATER YELLOWLEGS      | 67<br>68 | +  |    | +  | +  | 4   | +  |     |    |     |    |     |     |    |    |    |    | 2  |     |    |     |
| BLACK-NECKED STILT      | 67<br>68 | 1  |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    | +  |     |    |     |
| GT. BLACK-BACKED GULL   | 67<br>68 | 1  |    |    |    |     |    |     |    |     | 5  |     | +   |    |    | +  | 1  | 7  | 7   | 1  |     |
| HERRING GULL            | 67<br>68 |    |    | +  | +  | 2   | 1  |     |    | 115 |    |     | 28  | 1  | 23 | 22 | 26 | 32 | 26  | 32 | 9   |
| RING-BILLED GULL        | 67<br>68 |    |    | +  | +  | 6   | +  |     | +  |     |    | 27  | 1   | 2  | 11 | 37 | 21 | 9  | 8   | 8  | 2   |
| LAUGHING GULL           | 67<br>68 | 2  |    | 40 | 15 | 20  |    |     |    |     |    |     | 2   | +  | +  |    |    |    |     |    |     |
| GULL-BILLED TERN        | 67<br>68 | +  | 1  | 2  | 19 | 17  | 10 |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| FORSTER'S TERN          | 67<br>68 | +  |    | +  | +  |     | +  |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| COMMON TERN             | 67<br>68 | +  |    | +  |    | 2   | +  |     |    | 11  |    |     | 3   | 2  | 2  | 1  | 1  | 2  | 4   | +  | +   |
| ARCTIC TERN             | 67<br>68 |    |    |    |    | 1   |    |     |    |     |    |     | +   | +  |    |    |    | +  |     |    |     |
| LEAST TERN              | 67<br>68 | 4  |    | +  | +  | 4   |    |     |    |     |    |     | 2   | +  |    |    |    |    |     |    |     |
| ROYAL TERN              | 67<br>68 | 1  |    | +  | 1  |     | +  |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| CASPIAN TERN            | 67<br>68 | 1  |    | 1  | 3  | +   | +  |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| BLACK TERN              | 67<br>68 |    |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| BLACK SKIMMER           | 67<br>68 | +  | 2  |    | +  | 1   | +  |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| BLACK GUILLEMOT         | 67<br>68 | +  | +  |    | +  | 2   | +  |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| WHITE-CROWNED PIGEON    | 67<br>68 | 1  |    |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
| ROCK DOVE               | 67<br>68 | 1  | 3  | 2  | 3  | 6   | 13 | 15  | 9  | 14  | 33 | 8   | 9   | 7  | 11 | 5  | 3  | 1  | 1   | 4  | 1   |
| MOURNING DOVE           | 67<br>68 | 1  | 3  | 4  | 2  | 4   | 12 | 24  | 8  | 5   | 16 | 5   | 5   | 7  | 11 | 3  | 3  | 2  | 1   | 6  | 1   |
| GROUND DOVE             | 67<br>68 | 9  | 33 | 27 | 53 | 27  | 17 | 24  | 9  | 23  | 13 | 3   | 18  | 7  | 10 | 3  | 3  | +  | +   | +  | +   |
| YELLOW-BILLED CUCKOO    | 67<br>68 | 14 | 45 | 34 | 34 | 31  | 15 | 24  | 10 | 35  | 11 | 2   | 13  | 6  | 12 | 2  | 3  | 1  | +   | +  | +   |
| BLACK-BILLED CUCKOO     | 67<br>68 | 11 | +  |    |    |     |    |     |    |     |    |     |     |    |    |    |    |    |     |    |     |
|                         | 67<br>68 | 4  | 4  | 1  | 2  | 3   | 2  | 4   | 2  | 2   | 1  | 1   | 1   | +  | +  | +  | +  | +  | +   | +  | +   |
|                         | 67<br>68 | 4  | 5  | 3  | 2  | 4   | 1  | 3   | 3  | 1   | 1  | 1   | +   | +  | +  | +  | +  | +  | +   | +  | +   |
|                         | 67<br>68 | +  | +  | +  | 1  | 1   | +  | +   | +  | 2   | 1  | 2   | 1   | +  | +  | +  | +  | +  | 1   | +  | +   |
|                         | 67<br>68 | +  | +  | +  | +  | +   | +  | +   | +  | 1   | 2  | 1   | +   | +  | +  | +  | +  | +  | +   | +  | +   |

TABLE 4. AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 29 10 11 |    | 21 23 10 |    | 40 09 08 |     | 43 01 06 |     | 16 90 17 |    | 22 06 20 |     | 04 21 16 |    |    |    |    |    |     |    |     |  |
|-------------------------|----------|----|----------|----|----------|-----|----------|-----|----------|----|----------|-----|----------|----|----|----|----|----|-----|----|-----|--|
|                         | FLA      | GA | SC       | NC | VA       | DEL | MO       | WVA | NJ       | PA | RI       | CON | MAS      | NY | VT | NH | ME | NS | PEI | NB | QUE |  |
| SMOOTH-BILLED ANI       | 67<br>08 | 1  |          |    |          |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| SCRELECH OWL            | 67<br>08 | +  | +        | +  |          |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| GREAT HORNED OWL        | 67<br>08 | +  | +        | +  | +        |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| BURROWING OWL           | 67<br>08 | 1  |          |    |          |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| BARRED OWL              | 67<br>08 | +  | +        | +  | +        |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| SAW-WHET OWL            | 67<br>08 |    |          |    |          |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| CHUCK-WILL'S-WIDOW      | 67<br>08 | 2  | 4        | 2  | 1        | 1   | +        |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| WHIP-POOR-WILL          | 67<br>08 | 2  | 4        | 1  | 1        | +   | +        |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| COMMON NIGHTHAWK        | 67<br>08 | 11 | 1        | 1  | 1        | +   | +        |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| CHIMNEY SWIFT           | 67<br>08 | 4  | 15       | 19 | 21       | 14  | 15       | 15  | 7        | 10 | 11       | 3   | 2        | 10 | 5  | 4  | 9  | 5  | 3   | 2  | 1   |  |
| KUBY-THR. HUMMINGBIRD   | 67<br>08 | 3  | 22       | 19 | 18       | 12  | 13       | 15  | 15       | 6  | 11       | 4   | 15       | 4  | 6  | 13 | 11 | 4  | 4   | 2  | 2   |  |
| BELTED KINGFISHER       | 67<br>08 | +  | 1        | +  | +        | +   | +        | +   | +        | +  | +        | +   | +        | +  | +  | +  | +  | +  | +   | +  | +   |  |
| YELLOW-SHAFTED FLICKER  | 67<br>08 | 4  | 3        | 4  | 8        | 9   | 5        | 8   | 10       | 8  | 10       | 4   | 12       | 9  | 7  | 6  | 3  | 3  | 4   | 5  | 5   |  |
| PILEATED WOODPECKER     | 67<br>08 | 1  | 1        | +  | 1        | 1   | +        | +   | +        | +  | +        | +   | +        | +  | +  | +  | +  | +  | +   | +  | +   |  |
| RED-BELLIED WOODPECKER  | 67<br>08 | 15 | 11       | 10 | 9        | 10  | 6        | 8   | 1        | +  | +        | +   | +        | +  | +  | +  | +  | +  | +   | +  | +   |  |
| RED-HEADED WOODPECKER   | 67<br>08 | 17 | 17       | 12 | 5        | 8   | 4        | 6   | 1        | +  | +        | +   | +        | +  | +  | +  | +  | +  | +   | +  | +   |  |
| YELLOW-BEL. SAPSUCKER   | 67<br>08 | 3  | 2        | 1  | 1        |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| HAIKY WOODPECKER        | 67<br>08 | +  | +        | 1  | 1        | +   | +        |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| DOWNY WOODPECKER        | 67<br>08 | 1  | 2        | 2  | 2        | 4   | 2        | 4   | 2        | 1  | 2        | 1   | 6        | 2  | 1  | 1  | 2  | 1  | +   | +  | +   |  |
| RED-CUCKADED WOODPKR    | 67<br>08 | +  | +        | +  | +        | 3   | 3        | 4   | 3        | 1  | 1        | 2   | 8        | 3  | 2  | 2  | 1  | 1  | +   | +  | +   |  |
| BLK-BACK 3-TOED WOPKR   | 67<br>08 |    |          |    |          |     |          |     |          |    |          |     |          |    |    |    |    |    |     |    |     |  |
| EASTERN KINGBIRD        | 67<br>08 | 5  | 10       | 6  | 6        | 5   | 3        | 4   | 1        | 5  | 2        | 3   | 7        | 6  | 5  | 4  | 7  | 2  | 1   | 1  | 1   |  |
| GRAY KINGBIRD           | 67<br>08 | 4  | 9        | 7  | 4        | 4   | 2        | 4   | 1        | 4  | 1        | 1   | 5        | 7  | 5  | 6  | 6  | 3  | 1   | 1  | 2   |  |
| GT. CRESTED FLYCATCHER  | 67<br>08 | 11 | 7        | 11 | 8        | 4   | 4        | 5   | 4        | 8  | 3        | 2   | 2        | 4  | 2  | 2  | 1  | 1  | +   | +  | +   |  |
| EASTERN PHOENIX         | 67<br>08 | 13 | 11       | 10 | 5        | 4   | 4        | 5   | 4        | 5  | 3        | 3   | 3        | 3  | 3  | 1  | 1  | +  | +   | +  | +   |  |
|                         | 67<br>08 | 1  | 1        | 1  | 1        | 4   | 1        | 2   | 9        | 1  | 4        | 4   | 6        | 6  | 5  | 11 | 8  | 5  | +   | +  | +   |  |
|                         | 67<br>08 | +  | +        | 1  | 2        | 4   | 1        | 2   | 6        | 6  | 7        | 7   | 7        | 6  | 5  | 6  | 8  | 4  | +   | +  | +   |  |



TABLE 4. AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES            | 29  |    | 10 |    | 11 |     | 21  |     | 23  |     | 10  |     | 40  |     | 09 |    | 08 |    | 16  |    | 06  |  | 22 |  | 06 |  | 20 |  | 04 |  | 16 |  |
|------------------------------------|-----|----|----|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|----|----|----|-----|----|-----|--|----|--|----|--|----|--|----|--|----|--|
|                                    | FLA | GA | SC | NC | VA | DEL | MD  | WVA | NJ  | PA  | RI  | CON | MAS | NY  | VT | NH | ME | NS | PEL | NB | QUE |  |    |  |    |  |    |  |    |  |    |  |
| BROWN-HEAD. NUTHATCH<br>67<br>68   | 2   | 3  | 5  | 1  | 1  | +   | +   |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| BROWN CREEPER<br>67<br>68          | 2   | 3  | 3  | 1  | 1  | +   | +   |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| HOUSE WREN<br>67<br>68             | +   | 3  | 3  | 3  | 3  | 3   | 9   | 3   | 9   | 5   | 12  | 9   | 10  | 2   | 4  | 3  |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| WINTER WREN<br>67<br>68            |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| BEWICK'S WREN<br>67<br>68          |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| KAROLINA WREN<br>67<br>68          | 20  | 17 | 32 | 13 | 3  | 3   | 3   | 4   | +   | +   |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| LONG-BILLED WREN<br>67<br>68       | 21  | 16 | 21 | 9  | 3  | 4   | 3   | 6   | +   | +   |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| SHORT-BILL. MARSH WREN<br>67<br>68 | +   | +  |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| MOCKINGBIRD<br>67<br>68            | 51  | 45 | 39 | 45 | 31 | 28  | 32  | 5   | 25  | 3   |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| CATBIRD<br>67<br>68                | +   | 4  | 2  | 3  | 7  | 6   | 15  | 12  | 12  | 13  | 14  | 22  | 16  | 12  | 6  | 11 | 7  | 2  |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| BROWN THRASHER<br>67<br>68         | 3   | 7  | 9  | 9  | 5  | 3   | 5   | 6   | 6   | 2   | 5   | 6   | 4   | 4   | 1  | 2  | 2  | +  |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| ROBIN<br>67<br>68                  | 3   | 11 | 9  | 6  | 7  | 3   | 6   | 6   | 6   | 3   | 2   | 9   | 4   | 4   | 1  | 3  | 2  |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| WOOD THRUSH<br>67<br>68            | 1   | 20 | 15 | 12 | 23 | 6   | 19  | 19  | 7   | 13  | 9   | 22  | 11  | 11  | 17 | 4  | +  |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| HERMIT THRUSH<br>67<br>68          | +   | 11 | 12 | 13 | 15 | 6   | 16  | 21  | 5   | 12  | 17  | 19  | 13  | 12  | 19 | 18 | 6  | +  |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| SWAINSON'S THRUSH<br>67<br>68      |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| GRAY-CHEEKED THRUSH<br>67<br>68    |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| VEERY<br>67<br>68                  |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| EASTERN BLUEBIRD<br>67<br>68       | 7   | 5  | 7  | 4  | 3  | 3   | 2   | 8   | +   | 1   | 4   | 7   | 8   | 14  | 17 | 10 | 1  |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| BLUE-GRAY GNATCATCHER<br>67<br>68  | 5   | 2  | 4  | 2  | 1  | 1   | 1   | 9   | +   | 1   | 1   | 1   | 1   | 1   | 1  | 1  |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| GOLDEN-CROWNED KINGLET<br>67<br>68 | 3   | 1  | 3  | 1  | 4  | +   | 1   | 6   | +   | +   |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| RUBY-CROWNED KINGLET<br>67<br>68   |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| CEDAR WAXWING<br>67<br>68          |     |    |    |    |    |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| LOGGERHEAD SHRIKE<br>67<br>68      | 7   | 4  | 4  | 6  | 1  |     |     |     |     |     |     |     |     |     |    |    |    |    |     |    |     |  |    |  |    |  |    |  |    |  |    |  |
| STARLING<br>67<br>68               | 3   | 12 | 42 | 53 | 87 | 135 | 116 | 82  | 144 | 108 | 115 | 70  | 74  | 119 | 75 | 45 | 96 | 35 | 59  | 42 | 168 |  |    |  |    |  |    |  |    |  |    |  |
| WHITE-EYED VIREO<br>67<br>68       | 5   | 18 | 28 | 38 | 75 | 137 | 128 | 129 | 135 | 92  | 25  | 75  | 105 | 124 | 90 | 68 | 67 | 28 | 74  | 53 | 136 |  |    |  |    |  |    |  |    |  |    |  |



TABLE 4. AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 29 10 11 |        | 21 23 10 |        | 40 09 08 |          | 43 01 06 |          | 16 90 16 |        | 22 06 20 |          | 04 21 16 |          |         |          |          |         |        |         |          |
|-------------------------|----------|--------|----------|--------|----------|----------|----------|----------|----------|--------|----------|----------|----------|----------|---------|----------|----------|---------|--------|---------|----------|
|                         | FLA      | GA     | NC       | VA     | DEL      | MD       | MVA      | NJ       | PA       | RI     | CON      | MAS      | NY       | VT       | NH      | ME       | NS       | PEI     | NB     | QUE     |          |
| YELLOW-THROATED VIREO   | 67<br>68 | 1<br>1 | +        | 1<br>2 | 1<br>1   | 1<br>1   | 1<br>2   | +        | +        | 1<br>2 |          |          |          |          | +       |          |          |         |        | +       |          |
| SOLITARY VIREO          | 67<br>68 | +      |          | +      |          | +        | +        | +        | +        | 1      |          |          |          |          | 1       | +        | 1        | 3       | 2      | 1       |          |
| BLACK-WHISKERED VIREO   | 67<br>68 | 1      |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| RED-EYED VIREO          | 67<br>68 | 2<br>3 | 7<br>5   | 6<br>6 | 10<br>8  | 18<br>13 | 9<br>8   | 13<br>11 | 17<br>21 | 4<br>4 | 12<br>12 | 14<br>25 | 11<br>13 | 10<br>15 | 9<br>10 | 15<br>14 | 27<br>27 | 5<br>19 | 7<br>8 | 6<br>11 | 10<br>13 |
| PHILADELPHIA VIREO      | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| WARBLING VIREO          | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BLACK-8-WHITE WARBLER   | 67<br>68 | +      |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| PROTHONOTARY WARBLER    | 67<br>68 | 1<br>1 | 1<br>1   | 2<br>1 | 1<br>1   | +        | +        | +        | +        |        |          |          |          |          |         |          |          |         |        |         |          |
| SWAINSON'S WARBLER      | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| WORM-EATING WARBLER     | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| GOLDEN-WINGED WARBLER   | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BLUE-WINGED WARBLER     | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BREWSTER'S WARBLER      | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| TENNESSEE WARBLER       | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| NASHVILL WARBLER        | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| PARULA WARBLER          | 67<br>68 | 4<br>4 | 2<br>2   | 8<br>6 | 1<br>1   | 1<br>1   | 1<br>1   | 1<br>2   | 1<br>2   |        |          |          |          |          |         |          |          |         |        |         |          |
| YELLOW WARBLER          | 67<br>68 | +      |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| MAGNOLIA WARBLER        | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| CAPE MAY WARBLER        | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BLACK-THR BLUE WARBLER  | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| MYRTLE WARBLER          | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BLACK-TH GREEN WARBLER  | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| CERULEAN WARBLER        | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| BLACKBURNIAN WARBLER    | 67<br>68 |        |          |        |          |          |          |          |          |        |          |          |          |          |         |          |          |         |        |         |          |
| YELLOW-THROATED WARBLER | 67<br>68 | +      | 1        | 1      | 1        | +        | +        | +        | +        | +      | +        | +        | +        | +        | +       | +        | +        | +       | +      | +       |          |

TABLE 4 AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 29  |    | 10  |    | 21 |     | 23  |     | 10 |    | 40  |     | 09  |    | 08  |     | 43 |    | 01  |    | 06  |    | 22 |   | 06 |   | 20 |   | 04 |   | 16 |   |   |   |   |  |  |
|-------------------------|-----|----|-----|----|----|-----|-----|-----|----|----|-----|-----|-----|----|-----|-----|----|----|-----|----|-----|----|----|---|----|---|----|---|----|---|----|---|---|---|---|--|--|
|                         | FLA | GA | SC  | NC | VA | DEL | MO  | WVA | NJ | PA | RI  | CON | MAS | NY | VT  | NH  | ME | NS | PEI | NB | QUE |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| CHESTNUT-SIDED WARBLER  | 67  |    |     | 1  | +  |     | 1   | +   |    |    |     |     |     |    |     |     |    | 2  | 2   | 7  | 4   | 4  | 9  | 8 | 5  | 6 |    |   |    |   |    |   |   |   |   |  |  |
| BAY-BREASTED WARBLER    | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    | 2  | 3   | 5  | 5   | 4  | 8  | 1 | 7  | 7 |    |   |    |   |    |   |   |   |   |  |  |
| BAY-BREASTED WARBLER    | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BAY-BREASTED WARBLER    | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BLACKPOLL WARBLER       | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BLACKPOLL WARBLER       | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| PINE WARBLER            | 67  | 9  | 3   | 4  | 4  | 5   | 1   | 2   | +  | 4  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| PINE WARBLER            | 68  | 7  | 2   | 5  | 4  | 4   | 1   | 1   | 1  | 1  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| PRAIRIE WARBLER         | 67  | +  | 5   | 3  | 4  | 6   | 1   | 3   | 6  | 5  | +   | 2   | 1   | 2  | +   | +   | +  | +  | +   | +  | +   | +  | +  | + | +  | + | +  | + | +  | + | +  | + | + | + | + |  |  |
| PRAIRIE WARBLER         | 68  | +  | 3   | 3  | 9  | 5   | 1   | 2   | 6  | 6  | +   | 5   | 2   | 2  | +   | +   | +  | +  | +   | +  | +   | +  | +  | + | +  | + | +  | + | +  | + | +  | + | + | + | + |  |  |
| PALM WARBLER            | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| PALM WARBLER            | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| OVENBIRD                | 67  |    | +   | +  | 1  | 6   | 3   | 5   | 3  | 3  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| OVENBIRD                | 68  |    | 4   | 3  | 2  | 4   | 3   | 1   | 3  | 6  | 10  | 9   | 5   | 7  | 11  | 13  | 4  | 1  | 13  | 4  | 1   | 14 | 5  |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| NORTHERN WATERTHRUSH    | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| NORTHERN WATERTHRUSH    | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| LOUISIANA WATERTHRUSH   | 67  |    | +   | +  | +  | 1   | 1   | 1   | 1  | 1  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| LOUISIANA WATERTHRUSH   | 68  |    | +   | +  | +  | 1   | 1   | 1   | 1  | 1  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| KENTUCKY WARBLER        | 67  |    | +   | +  | +  | 1   | 1   | 2   | 2  | 2  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| KENTUCKY WARBLER        | 68  |    | +   | +  | +  | 1   | 1   | 1   | 1  | 1  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| MOURNING WARBLER        | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| MOURNING WARBLER        | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| YELLOWTHROAT            | 67  | 16 | 10  | 12 | 13 | 9   | 11  | 12  | 13 | 7  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| YELLOWTHROAT            | 68  | 16 | 7   | 8  | 15 | 7   | 11  | 12  | 16 | 8  |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| YELLOW-BREASTED CHAT    | 67  | +  | 16  | 9  | 5  | 12  | 4   | 6   | 17 | +  | 2   |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| YELLOW-BREASTED CHAT    | 68  | +  | 10  | 9  | 5  | 10  | 3   | 5   | 19 |    | 2   |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| HOODED WARBLER          | 67  | 1  | 2   | 1  | 3  | 1   |     | 1   | 1  |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| HOODED WARBLER          | 68  | 1  | 1   | 2  | 2  | 1   |     | 1   | 2  |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| WILSON'S WARBLER        | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| WILSON'S WARBLER        | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| CANADA WARBLER          | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| CANADA WARBLER          | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| AMERICAN REDSTART       | 67  | +  | +   |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| AMERICAN REDSTART       | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| HOUSE SPARRON           | 67  | 16 | 42  | 34 | 70 | 56  | 133 | 120 | 77 | 58 | 69  | 19  | 28  | 28 | 51  | 16  | 9  | 20 | 16  | 29 | 19  | 68 |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| HOUSE SPARRON           | 68  | 21 | 47  | 35 | 53 | 48  | 117 | 101 | 77 | 50 | 53  | 4   | 31  | 22 | 48  | 28  | 10 | 14 | 9   | 31 | 19  | 48 |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BOBOLINK                | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BOBOLINK                | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| EASTERN MEADOWLARK      | 67  | 39 | 26  | 28 | 19 | 20  | 6   | 21  | 22 | 3  | 18  | 1   | 6   | 3  | 18  | 3   | 3  | 4  |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| EASTERN MEADOWLARK      | 68  | 44 | 22  | 24 | 18 | 27  | 9   | 20  | 21 | 3  | 17  | 5   | 5   | 5  | 21  | 5   | 4  | 3  |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| WESTERN MEADOWLARK      | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| WESTERN MEADOWLARK      | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| RED-WINGED BLACKBIRD    | 67  | 50 | 41  | 33 | 12 | 24  | 73  | 76  | 73 | 34 | 113 | 79  | 68  | 31 | 141 | 94  | 26 | 19 | 8   | 48 | 19  | 77 |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| RED-WINGED BLACKBIRD    | 68  | 43 | 105 | 30 | 9  | 28  | 59  | 80  | 62 | 27 | 103 | 5   | 72  | 33 | 157 | 110 | 32 | 28 | 9   | 40 | 20  | 91 |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| ORCHARD ORIOLE          | 67  | 2  | 5   | 11 | 4  | 1   | 1   | 2   | 1  | 1  | +   | +   | +   |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| ORCHARD ORIOLE          | 68  | 4  | 5   | 9  | 2  | 1   | 1   | 2   | 1  | 1  | +   | +   | +   |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| SPOTTED-BREASTED ORIOLE | 67  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| SPOTTED-BREASTED ORIOLE | 68  |    |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BALTIMORE ORIOLE        | 67  | +  |     |    |    |     |     |     |    |    |     |     |     |    |     |     |    |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BALTIMORE ORIOLE        | 68  |    | 1   | 2  | 1  | 1   | 2   | 3   | 3  | 5  | 6   | 4   | 18  | 12 | 12  | 7   | 5  | 1  | +   |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |
| BALTIMORE ORIOLE        | 69  |    | 1   | 1  | 1  | 1   | 2   | 5   | 2  | 5  | 3   | 13  | 10  | 9  | 5   | 1   | +  |    |     |    |     |    |    |   |    |   |    |   |    |   |    |   |   |   |   |  |  |



TABLE 4 AVERAGE NUMBER OF BIRDS PER ROUTE, IN EASTERN STATES AND PROVINCES, 1967 AND 1968

| NO. OF ROUTES<br>STATES | 29  |    | 10 |    | 11 |     | 21 |     | 23 |    | 10 |     | 40  |    | 09 |    | 08 |    | 43  |    | 01  |   | 06 |   | 16 |   | 90 |   | 17 |   | 22 |   | 06 |   | 20 |   | 04 |   | 21 |   | 16 |   |   |   |  |  |  |
|-------------------------|-----|----|----|----|----|-----|----|-----|----|----|----|-----|-----|----|----|----|----|----|-----|----|-----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|----|---|---|---|--|--|--|
|                         | FLA | GA | SC | NC | VA | DEL | MD | WVA | NJ | PA | RI | CON | MAS | NY | VT | NH | ME | NS | PEI | NB | QUE |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| SEASIDE SPARROW         | 67  |    |    | +  | 1  | +   |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  | +  |    |    | +  |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| VESPER SPARROW          | 67  |    |    | 1  | 1  | 4   | +  | +   | +  | 4  |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    | +  | 1  | 3   | 1  | +   | 2  |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| BACHMAN'S SPARRUW       | 67  | 5  | +  | 1  |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  | 4  | +  |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| SLATE-COLORED JUNCO     | 67  |    |    | +  |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    | +  |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| CHIPPING SPARRUW        | 67  | +  | 4  | 8  | 15 | 18  | 22 | 22  | 21 | 16 | 19 | 5   | 16  | 9  | 15 | 9  | 11 | 4  | 4   | 4  | 4   | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4  | 4 | 4 | 4 |  |  |  |
|                         | 68  |    | 4  | 7  | 12 | 18  | 19 | 20  | 25 | 12 | 19 | 7   | 19  | 14 | 17 | 12 | 13 | 6  | 6   | 6  | 6   | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6  | 6 | 6 | 6 |  |  |  |
| FIELD SPARRUW           | 67  | 1  | 20 | 16 | 14 | 16  | 14 | 17  | 15 | 9  | 12 | 1   | 9   | 3  | 10 | 2  | 4  | 1  |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  | +  | 19 | 16 | 12 | 17  | 12 | 19  | 15 | 10 | 12 | 2   | 8   | 6  | 13 | 3  | 3  | +  |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| WHITE-THROATED SPARRUW  | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| FOX SPARRUW             | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| LINCOLN'S SPARRUW       | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| SWAMP SPARRUW           | 67  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    |    |    |    |     |    |     |    |    |    |     |     |    |    |    |    |    |     |    |     |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
| SONG SPARRUW            | 67  | 1  | 1  | +  | 5  | 15  | 13 | 27  | 17 | 26 | 10 | 31  | 21  | 40 | 30 | 20 | 34 | 32 | 51  | 30 | 51  |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |
|                         | 68  |    | 1  | 6  | 7  | 14  | 12 | 28  | 13 | 27 | 12 | 35  | 26  | 44 | 37 | 20 | 30 | 31 | 59  | 31 | 32  |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |    |   |   |   |  |  |  |

Table 5.--Analysis of population changes east of the Mississippi River from Breeding Bird Survey, 1966-1967

| Species                 | Number of<br>Comparable<br>Routes | Weighted Mean<br>Birds Per Route |       | Weighted<br>Mean<br>Difference | Standard<br>Error of<br>Wtd. Mean Percent<br>Change |         |
|-------------------------|-----------------------------------|----------------------------------|-------|--------------------------------|---|---------|
|                         |                                   | 1966                             | 1967  |                                | Diff.   | Change  |
| Sparrow Hawk            | 511                               | 0.50                             | 0.43  | - 0.07                         | 0.295   | - 12.8% |
| Bobwhite                | 432                               | 31.25                            | 31.26 | + 0.01                         | 1.424   | + 0.0%  |
| Killdeer                | 509                               | 2.28                             | 2.25  | - 0.03                         | 0.361   | - 1.3%  |
| *Mourning Dove          | 469                               | 24.51                            | 21.88 | - 2.63                         | 1.095   | - 10.7% |
| **Yellow-billed Cuckoo  | 481                               | 3.49                             | 2.37  | - 1.12                         | 0.432   | - 31.9% |
| Chimney Swift           | 503                               | 9.92                             | 10.03 | + 0.11                         | 0.632   | + 1.1%  |
| Yellow-shafted Flicker  | 501                               | 5.29                             | 5.32  | + 0.03                         | 0.369   | + 0.5%  |
| Red-bellied Woodpecker  | 402                               | 6.16                             | 5.65  | - 0.51                         | 0.534   | - 8.3%  |
| Eastern Kingbird        | 503                               | 5.68                             | 5.26  | - 0.42                         | 0.382   | - 7.4%  |
| Eastern Phoebe          | 513                               | 1.87                             | 2.37  | + 0.50                         | 0.308   | + 27.0% |
| Eastern Wood Pewee      | 507                               | 4.18                             | 4.48  | + 0.30                         | 0.436   | + 7.2%  |
| Barn Swallow            | 502                               | 12.82                            | 12.38 | - 0.44                         | 0.850   | - 3.4%  |
| Blue Jay                | 499                               | 17.40                            | 16.44 | - 0.96                         | 0.591   | - 5.5%  |
| Common Crow             | 498                               | 27.85                            | 27.22 | - 0.63                         | 1.132   | - 2.3%  |
| Tufted Titmouse         | 430                               | 6.43                             | 6.47  | + 0.04                         | 0.396   | + 0.6%  |
| House Wren              | 413                               | 4.89                             | 4.51  | - 0.38                         | 0.352   | - 7.9%  |
| Catbird                 | 501                               | 6.03                             | 5.34  | - 0.69                         | 0.369   | - 11.5% |
| Brown Thrasher          | 484                               | 4.87                             | 5.36  | + 0.49                         | 0.371   | + 10.2% |
| *Robin                  | 513                               | 29.49                            | 31.06 | + 1.57                         | 0.770   | + 5.4%  |
| Wood Thrush             | 486                               | 9.08                             | 9.31  | + 0.23                         | 0.547   | + 2.6%  |
| Eastern Bluebird        | 505                               | 3.97                             | 3.76  | - 0.21                         | 0.352   | - 5.4%  |
| Starling                | 512                               | 86.80                            | 68.64 | -18.16                         | 8.842   | - 20.9% |
| **Red-eyed Vireo        | 505                               | 9.06                             | 7.80  | - 1.26                         | 0.436   | - 13.9% |
| Black-and-white Warbler | 491                               | 0.78                             | 0.71  | - 0.07                         | 0.249   | - 8.8%  |
| Ovenbird                | 487                               | 3.67                             | 3.54  | - 0.13                         | 0.375   | - 3.6%  |
| Yellowthroat            | 501                               | 12.11                            | 11.77 | - 0.34                         | 0.484   | - 2.9%  |
| Yellow-breasted Chat    | 431                               | 7.94                             | 7.88  | - 0.06                         | 0.506   | - 0.8%  |
| House Sparrow           | 511                               | 82.58                            | 74.12 | - 8.46                         | 5.378   | - 10.2% |
| Eastern Meadowlark      | 512                               | 25.28                            | 27.52 | + 2.24                         | 1.222   | + 8.9%  |
| Red-winged Blackbird    | 497                               | 79.86                            | 88.25 | + 8.39                         | 7.443   | + 10.5% |
| Common Grackle          | 497                               | 81.74                            | 76.41 | - 5.33                         | 5.715   | - 6.5%  |
| Brown-headed Cowbird    | 499                               | 9.45                             | 9.43  | - 0.02                         | 0.558   | - 0.2%  |
| Scarlet Tanager         | 409                               | 1.93                             | 1.49  | - 0.43                         | 0.351   | - 22.5% |
| *Cardinal               | 440                               | 27.19                            | 29.99 | + 2.80                         | 0.997   | + 10.3% |
| Indigo Bunting          | 502                               | 16.51                            | 16.45 | - 0.06                         | 0.603   | - 0.4%  |
| **Dickcissel            | 236                               | 10.94                            | 17.03 | + 6.09                         | 1.686   | + 55.7% |
| American Goldfinch      | 469                               | 10.08                            | 10.91 | + 0.83                         | 0.842   | + 8.2%  |
| Rufous-sided Towhee     | 483                               | 14.44                            | 14.57 | + 0.13                         | 0.684   | + 0.9%  |
| Chipping Sparrow        | 480                               | 9.39                             | 9.67  | + 0.28                         | 0.411   | + 3.0%  |
| Field Sparrow           | 473                               | 12.42                            | 12.99 | + 0.57                         | 0.517   | + 4.6%  |

\*\* change highly significant (99%)

\* change significant (95%)

Table 6.--Analysis of population changes based on 580 comparable routes east of the Mississippi River, 1967-1968

| <u>Species</u>         | <u>Weighted Mean</u>   |             | <u>Weighted</u>   | <u>Standard</u>   | <u>Error of Wtd. Percent</u> |
|------------------------|------------------------|-------------|-------------------|-------------------|------------------------------|
|                        | <u>Birds Per Route</u> |             |                   |                   |                              |
|                        | <u>1967</u>            | <u>1968</u> | <u>Difference</u> | <u>Mean Diff.</u> | <u>Change</u>                |
| Cattle Egret           | 6.05                   | 7.65        | + 1.60            | 1.15              | + 26%                        |
| Turkey Vulture         | 0.82                   | 1.14        | + 0.32            | 0.25              | + 39%                        |
| *Red-tailed Hawk       | 0.14                   | 0.25        | + 0.11            | 0.05              | + 82%                        |
| Sparrow Hawk           | 0.47                   | 0.60        | + 0.13            | 0.09              | + 28%                        |
| Bobwhite               | 24.54                  | 25.72       | + 1.18            | 1.49              | + 5%                         |
| Killdeer               | 2.70                   | 3.04        | + 0.34            | 0.30              | + 12%                        |
| Mourning Dove          | 18.98                  | 20.61       | + 1.63            | 1.30              | + 9%                         |
| **Yellow-billed Cuckoo | 2.29                   | 3.19        | + 0.90            | 0.26              | + 39%                        |
| Belted Kingfisher      | 0.39                   | 0.49        | + 0.10            | 0.06              | + 25%                        |
| Yellow-shafted Flicker | 5.23                   | 5.45        | + 0.22            | 0.32              | + 4%                         |
| Red-headed Woodpecker  | 1.56                   | 1.69        | + 0.13            | 0.20              | + 8%                         |
| Eastern Kingbird       | 4.75                   | 4.74        | - 0.01            | 0.33              | 0%                           |
| Eastern Phoebe         | 2.22                   | 2.19        | - 0.03            | 0.19              | - 1%                         |
| Horned Lark            | 4.60                   | 4.48        | - 0.12            | 0.97              | - 3%                         |
| Blue Jay               | 16.68                  | 17.44       | + 0.75            | 0.91              | + 5%                         |
| Starling               | 71.20                  | 68.03       | - 3.17            | 5.59              | - 4%                         |
| Barn Swallow           | 14.04                  | 15.30       | + 1.26            | 1.03              | + 9%                         |
| Purple Martin          | 7.49                   | 6.63        | - 0.86            | 0.94              | - 11%                        |
| Black-capped Chickadee | 1.36                   | 1.74        | + 0.38            | 0.38              | + 28%                        |
| Tufted Titmouse        | 5.34                   | 5.51        | + 0.16            | 0.46              | + 3%                         |
| House Wren             | 3.06                   | 3.10        | + 0.04            | 0.36              | + 1%                         |
| Carolina Wren          | 6.10                   | 6.52        | + 0.42            | 0.69              | + 7%                         |
| Mockingbird            | 20.16                  | 21.15       | + 1.00            | 1.52              | + 10%                        |
| Catbird                | 4.90                   | 5.03        | + 0.13            | 0.46              | + 3%                         |
| Brown Thrasher         | 5.37                   | 4.85        | - 0.52            | 0.37              | - 10%                        |
| Robin                  | 29.66                  | 29.42       | - 0.24            | 1.51              | - 1%                         |
| Wood Thrush            | 7.55                   | 7.22        | - 0.33            | 0.59              | - 4%                         |
| Eastern Bluebird       | 3.40                   | 3.00        | - 0.40            | 0.96              | - 12%                        |
| Red-eyed Vireo         | 6.72                   | 7.31        | + 0.59            | 0.56              | + 9%                         |
| Yellow Warbler         | 3.28                   | 3.09        | - 0.19            | 0.34              | - 6%                         |
| Ovenbird               | 3.30                   | 3.14        | - 0.15            | 0.39              | - 5%                         |
| Yellowthroat           | 11.63                  | 11.84       | + 0.22            | 0.78              | + 2%                         |
| Yellow-breasted Chat   | 5.90                   | 6.03        | + 0.14            | 0.49              | + 2%                         |
| House Sparrow          | 74.22                  | 67.56       | - 6.66            | 0.74              | - 9%                         |
| Eastern Meadowlark     | 26.51                  | 29.02       | + 2.51            | 1.95              | + 9%                         |
| Western Meadowlark     | 2.60                   | 2.43        | - 0.17            | 0.56              | - 6%                         |
| Red-winged Blackbird   | 78.98                  | 83.33       | + 4.35            | 8.46              | + 6%                         |
| Baltimore Oriole       | 2.63                   | 2.38        | - 0.25            | 0.29              | - 9%                         |
| Common Grackle         | 60.97                  | 67.82       | + 6.84            | 5.57              | + 11%                        |
| Brown-headed Cowbird   | 9.63                   | 9.26        | - 0.37            | 0.69              | - 4%                         |
| Cardinal               | 25.01                  | 24.18       | - 0.83            | 1.41              | - 3%                         |
| Indigo Bunting         | 15.31                  | 14.48       | - 0.84            | 0.78              | - 5%                         |
| *Dickcissel            | 6.25                   | 3.99        | - 2.26            | 0.88              | - 36%                        |
| *American Goldfinch    | 11.04                  | 13.11       | + 2.07            | 0.86              | + 19%                        |
| Rufous-sided Towhee    | 14.41                  | 15.52       | + 1.11            | 1.01              | + 8%                         |
| Field Sparrow          | 10.97                  | 10.26       | - 0.70            |                   | - 6%                         |
| Song Sparrow           | 17.65                  | 18.94       | + 1.29            | 1.16              | + 7%                         |

\*\* change highly significant (99%)

\* change significant (95%)

Table 7.--Analysis of population changes based on 222 comparable routes  
from the Great Plains to the Mississippi River, 1967-1968

| Species                | Weighted Mean<br>Birds Per Route |       | Weighted<br>Mean<br>Difference | Standard<br>Error of Wtd.<br>Mean Diff. | Percent<br>Change |
|------------------------|----------------------------------|-------|--------------------------------|---|-------------------|
|                        | 1967                             | 1968  |                                |   |                   |
| Cattle Egret           | 0.99                             | 0.72  | - 0.27                         | 1.07                                    | - 28%             |
| Turkey Vulture         | 3.74                             | 3.21  | - 0.53                         | 0.55                                    | - 14%             |
| Red-tailed Hawk        | 0.63                             | 0.74  | + 0.11                         | 0.15                                    | + 17%             |
| Sparrow Hawk           | 0.46                             | 0.56  | + 0.11                         | 0.11                                    | + 23%             |
| Bobwhite               | 18.73                            | 21.37 | + 2.64                         | 1.84                                    | + 10%             |
| Killdeer               | 5.04                             | 6.38  | + 1.34                         | 0.73                                    | + 26%             |
| **Mourning Dove        | 47.69                            | 38.26 | - 9.43                         | 3.27                                    | - 20%             |
| Yellow-billed Cuckoo   | 5.07                             | 4.40  | - 0.67                         | 0.56                                    | - 13%             |
| Belted Kingfisher      | 0.13                             | 0.16  | + 0.03                         | 0.07                                    | + 23%             |
| Yellow-shafted Flicker | 2.88                             | 3.04  | + 0.16                         | 0.42                                    | + 5%              |
| Red-headed Woodpecker  | 2.54                             | 3.15  | - 0.61                         | 0.40                                    | + 24%             |
| Eastern Kingbird       | 7.59                             | 7.18  | - 0.41                         | 0.83                                    | - 5%              |
| Eastern Phoebe         | 0.94                             | 0.85  | - 0.09                         | 0.18                                    | - 9%              |
| Horned Lark            | 23.84                            | 19.64 | - 4.20                         | 2.66                                    | - 18%             |
| Blue Jay               | 5.19                             | 5.60  | + 0.41                         | 0.62                                    | + 8%              |
| Starling               | 11.41                            | 13.51 | + 2.10                         | 3.19                                    | + 18%             |
| *Barn Swallow          | 9.89                             | 12.29 | + 2.40                         | 1.13                                    | + 24%             |
| Purple Martin          | 3.90                             | 3.89  | - 0.00                         | 0.85                                    | 0%                |
| Black-capped Chickadee | 1.01                             | 0.60  | - 0.41                         | 0.31                                    | - 41%             |
| Tufted Titmouse        | 3.30                             | 2.58  | - 0.72                         | 0.60                                    | - 22%             |
| House Wren             | 3.20                             | 3.67  | + 0.47                         | 0.52                                    | + 15%             |
| Carolina Wren          | 2.22                             | 2.34  | + 0.12                         | 0.49                                    | + 5%              |
| Mockingbird            | 24.83                            | 22.75 | - 2.08                         | 2.43                                    | - 8%              |
| Catbird                | 1.19                             | 1.50  | + 0.31                         | 0.25                                    | + 26%             |
| Brown Thrasher         | 4.30                             | 4.12  | - 0.19                         | 0.60                                    | - 4%              |
| Robin                  | 8.43                             | 9.28  | + 0.85                         | 0.94                                    | + 10%             |
| Wood Thrush            | 7.55                             | 7.22  | - 0.33                         | 0.59                                    | - 4%              |
| Eastern Bluebird       | 2.81                             | 2.68  | - 0.12                         | 0.26                                    | - 4%              |
| Red-eyed Vireo         | 2.77                             | 2.76  | - 0.01                         | 0.54                                    | 0%                |
| Yellow Warbler         | 2.62                             | 2.27  | - 0.35                         | 0.45                                    | - 13%             |
| Ovenbird               | 0.87                             | 0.99  | + 0.12                         | 0.44                                    | + 14%             |
| Yellowthroat           | 4.94                             | 5.84  | + 0.90                         | 0.92                                    | + 18%             |
| Yellow-breasted Chat   | 2.07                             | 2.06  | - 0.01                         | 0.41                                    | 0%                |
| House Sparrow          | 60.23                            | 56.47 | - 3.75                         | 7.28                                    | - 6%              |
| Eastern Meadowlark     | 21.46                            | 22.77 | + 1.32                         | 2.93                                    | + 6%              |
| Western Meadowlark     | 65.28                            | 64.21 | - 1.07                         | 6.85                                    | - 2%              |
| Red-winged Blackbird   | 71.77                            | 73.93 | + 2.16                         | 6.73                                    | + 3%              |
| Baltimore Oriole       | 2.24                             | 2.75  | + 0.51                         | 0.38                                    | + 23%             |
| Common Grackle         | 26.43                            | 30.15 | + 3.72                         | 5.37                                    | + 14%             |
| Brown-headed Cowbird   | 25.04                            | 23.13 | - 1.91                         | 2.67                                    | - 8%              |
| Cardinal               | 17.48                            | 14.16 | - 3.32                         | 2.10                                    | - 19%             |
| Indigo Bunting         | 4.50                             | 4.36  | - 0.14                         | 0.59                                    | - 3%              |
| Dickcissel             | 25.05                            | 23.27 | - 1.78                         | 3.28                                    | - 7%              |
| American Goldfinch     | 3.79                             | 5.13  | + 1.34                         | 0.96                                    | + 35%             |
| Rufous-sided Towhee    | 0.65                             | 0.81  | + 0.16                         | 0.18                                    | + 24%             |
| Lark Bunting           | 20.68                            | 20.60 | - 0.08                         | 6.65                                    | 0%                |
| Field Sparrow          | 4.60                             | 4.28  | - 0.32                         | 0.70                                    | - 7%              |
| Song Sparrow           | 3.54                             | 4.50  | + 0.96                         | 0.78                                    | + 27%             |

\*\* change highly significant (99%)

\* change significant (95%)

Table 8.--Analysis of population changes based on 802 comparable routes from the Great Plains to the Atlantic Ocean, 1967-1968

| Species                | Weighted Mean        |                      | Weighted Mean Difference | Standard Error of Wtd Mean Diff. | Percent Change (underscored) and 95% Confidence Limits |       |       |
|------------------------|----------------------|----------------------|--------------------------|----------------------------------|--|-------|-------|
|                        | Birds Per Route 1967 | Birds Per Route 1968 |                          |                                  | -  | +     | +     |
| Cattle Egret           | 3.48                 | 4.13                 | + 0.65                   | 0.79                             | - 12%  | + 19% | + 49% |
| Bobwhite               | 21.59                | 23.51                | + 1.92                   | 1.19                             | - 2%   | + 9%  | + 20% |
| *Killdeer              | 3.89                 | 4.73                 | + 0.84                   | 0.40                             | + 1%   | + 22% | + 42% |
| Upland Plover          | 1.00                 | 1.05                 | + 0.05                   | 0.39                             | - 73%  | + 5%  | + 83% |
| *Mourning Dove         | 33.54                | 29.56                | - 3.98                   | 1.78                             | - 22%  | - 12% | - 1%  |
| Turkey Vulture         | 2.30                 | 2.19                 | - 0.11                   | 0.31                             | - 31%  | - 5%  | + 22% |
| Red-tailed Hawk        | 0.39                 | 0.50                 | + 0.11                   | 0.08                             | - 12%  | + 29% | + 70% |
| Sparrow Hawk           | 0.46                 | 0.58                 | + 0.12                   | 0.07                             | - 5%   | + 26% | + 56% |
| Yellow-billed Cuckoo   | 3.70                 | 3.81                 | + 0.11                   | 0.31                             | - 14%  | + 3%  | + 20% |
| Belted Kingfisher      | 0.26                 | 0.32                 | + 0.06                   | 0.04                             | - 9%   | + 25% | + 58% |
| Yellow-shafted Flicker | 4.04                 | 4.22                 | + 0.19                   | 0.27                             | - 2%   | + 5%  | + 11% |
| Red-headed Woodpecker  | 2.06                 | 2.43                 | + 0.37                   | 0.23                             | - 4%   | + 18% | + 40% |
| Eastern Kingbird       | 6.19                 | 5.97                 | - 0.22                   | 0.45                             | - 18%  | - 3%  | + 11% |
| Eastern Phoebe         | 1.57                 | 1.51                 | - 0.06                   | 0.13                             | - 20%  | - 4%  | + 13% |
| Horned Lark            | 14.36                | 12.17                | - 2.19                   | 1.43                             | - 35%  | - 15% | + 5%  |
| *Barn Swallow          | 11.93                | 13.77                | + 1.84                   | 0.76                             | + 3%   | + 15% | + 28% |
| Purple Martin          | 5.66                 | 5.24                 | - 0.42                   | 0.63                             | - 19%  | - 7%  | + 4%  |
| Blue Jay               | 10.85                | 11.43                | + 0.58                   | 0.55                             | - 5%   | + 5%  | + 15% |
| Black-capped Chickadee | 1.18                 | 1.16                 | - 0.02                   | 0.20                             | - 35%  | - 2%  | + 32% |
| Tufted Titmouse        | 4.31                 | 4.02                 | - 0.28                   | 0.38                             | - 24%  | - 7%  | + 11% |
| House Wren             | 3.13                 | 3.39                 | + 0.26                   | 0.32                             | - 28%  | + 8%  | + 12% |
| Carolina Wren          | 4.13                 | 4.40                 | + 0.27                   | 0.42                             | - 14%  | + 7%  | + 27% |
| Mockingbird            | 22.53                | 21.96                | - 0.57                   | 1.44                             | - 15%  | - 3%  | + 10% |
| Catbird                | 3.02                 | 3.24                 | + 0.22                   | 0.26                             | - 10%  | + 7%  | + 25% |
| Brown Thrasher         | 4.83                 | 4.48                 | - 0.35                   | 0.35                             | - 22%  | - 7%  | + 7%  |
| Robin                  | 18.90                | 19.21                | + 0.31                   | 0.88                             | - 8%   | + 2%  | + 11% |
| Wood Thrush            | 4.14                 | 3.99                 | - 0.15                   | 0.32                             | - 19%  | - 4%  | + 12% |
| Eastern Bluebird       | 2.81                 | 2.68                 | - 0.12                   | 0.26                             | - 23%  | - 4%  | + 14% |
| Starling               | 40.87                | 40.37                | - 0.50                   | 3.19                             | - 17%  | - 1%  | + 14% |
| Red-eyed Vireo         | 4.72                 | 5.00                 | + 0.28                   | 0.39                             | - 10%  | + 6%  | + 22% |
| Yellow Warbler         | 2.94                 | 2.67                 | - 0.27                   | 0.28                             | - 29%  | - 9%  | + 10% |
| Ovenbird               | 2.06                 | 2.05                 | - 0.01                   | 0.29                             | - 29%  | - 1%  | + 28% |
| Yellowthroat           | 8.23                 | 8.80                 | + 0.56                   | 0.60                             | - 8%   | + 7%  | + 21% |
| Yellow-breasted Chat   | 3.96                 | 4.02                 | + 0.06                   | 0.32                             | - 15%  | + 2%  | + 18% |
| House Sparrow          | 67.12                | 61.94                | - 5.18                   | 5.21                             | - 23%  | - 8%  | + 8%  |
| Eastern Meadowlark     | 23.95                | 25.85                | + 1.90                   | 1.77                             | - 7%   | + 7%  | + 23% |
| Western Meadowlark     | 34.39                | 33.77                | - 0.63                   | 3.48                             | - 12%  | - 2%  | + 8%  |
| Red-winged Blackbird   | 75.32                | 78.56                | + 3.24                   | 5.39                             | - 10%  | + 4%  | + 19% |
| Baltimore Oriole       | 2.43                 | 2.57                 | + 0.14                   | 0.24                             | - 14%  | + 6%  | + 25% |
| Common Grackle         | 26.43                | 30.15                | + 3.72                   | 5.37                             | - 6%   | + 14% | + 34% |
| Brown-headed Cowbird   | 17.45                | 16.30                | - 1.15                   | 1.39                             | - 23%  | - 7%  | + 9%  |
| Cardinal               | 21.19                | 19.10                | - 2.09                   | 1.27                             | - 22%  | - 10% | + 2%  |
| Indigo Bunting         | 9.83                 | 9.35                 | - 0.48                   | 0.49                             | - 29%  | - 5%  | + 23% |
| Dickcissel             | 15.78                | 13.77                | - 2.01                   | 1.72                             | - 35%  | - 13% | + 9%  |
| *American Goldfinch    | 7.36                 | 9.06                 | + 1.70                   | 0.65                             | + 5%   | + 23% | + 41% |
| Rufous-sided Towhee    | 7.43                 | 8.06                 | + 0.63                   | 0.50                             | - 5%   | + 8%  | + 22% |
| Lark Bunting           | 20.68                | 20.60                | - 0.08                   | 6.65                             | - 6%   | 0     | + 6%  |
| Field Sparrow          | 7.74                 | 7.23                 | - 0.51                   | 0.54                             | - 21%  | - 7%  | + 7%  |
| Song Sparrow           | 10.49                | 11.62                | + 1.12                   | 0.69                             | - 2%   | + 11% | + 24% |

\*\* change highly significant (99%)

\* change significant (95%)



Table 9.--Population indexes for selected species.  
Base year, 1968

| <u>Species</u>         | <u>Central Region</u> |             | <u>Eastern Region</u> |             |             |
|------------------------|-----------------------|-------------|-----------------------|-------------|-------------|
|                        | <u>1967</u>           | <u>1968</u> | <u>1966</u>           | <u>1967</u> | <u>1968</u> |
| Sparrow Hawk           | 81                    | 100         | 91                    | 78          | 100         |
| Bobwhite               | 88                    | 100         | 95                    | 95          | 100         |
| Killdeer               | 79                    | 100         | 90                    | 89          | 100         |
| Mourning Dove          | 125                   | 100         | 103                   | 92          | 100         |
| Yellow-billed Cuckoo   | 115                   | 100         | 106                   | 72          | 100         |
| Yellow-shafted Flicker | 95                    | 100         | 95                    | 96          | 100         |
| Eastern Kingbird       | 106                   | 100         | 108                   | 100         | 100         |
| Eastern Phoebe         | 110                   | 100         | 80                    | 101         | 100         |
| Barn Swallow           | 80                    | 100         | 95                    | 92          | 100         |
| Blue Jay               | 93                    | 100         | 101                   | 96          | 100         |
| Tufted Titmouse        | 127                   | 100         | 96                    | 97          | 100         |
| House Wren             | 87                    | 100         | 107                   | 99          | 100         |
| Catbird                | 79                    | 100         | 110                   | 97          | 100         |
| Brown Thrasher         | 104                   | 100         | 101                   | 111         | 100         |
| Robin                  | 91                    | 100         | 96                    | 101         | 100         |
| Wood Thrush            | 98                    | 100         | 102                   | 105         | 100         |
| Eastern Bluebird       | 94                    | 100         | 120                   | 113         | 100         |
| Red-eyed Vireo         | 100                   | 100         | 107                   | 92          | 100         |
| Ovenbird               | 87                    | 100         | 109                   | 105         | 100         |
| Yellowthroat           | 85                    | 100         | 101                   | 98          | 100         |
| Yellow-breasted Chat   | 100                   | 100         | 98                    | 98          | 100         |
| House Sparrow          | 107                   | 100         | 122                   | 110         | 100         |
| Cardinal               | 123                   | 100         | 94                    | 103         | 100         |
| Indigo Bunting         | 103                   | 100         | 106                   | 106         | 100         |
| Dickcissel             | 108                   | 100         | 101                   | 156         | 100         |
| American Goldfinch     | 80                    | 100         | 95                    | 92          | 100         |
| Rufous-sided Towhee    | 80                    | 100         | 92                    | 93          | 100         |
| Field Sparrow          | 107                   | 100         | 102                   | 107         | 100         |





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