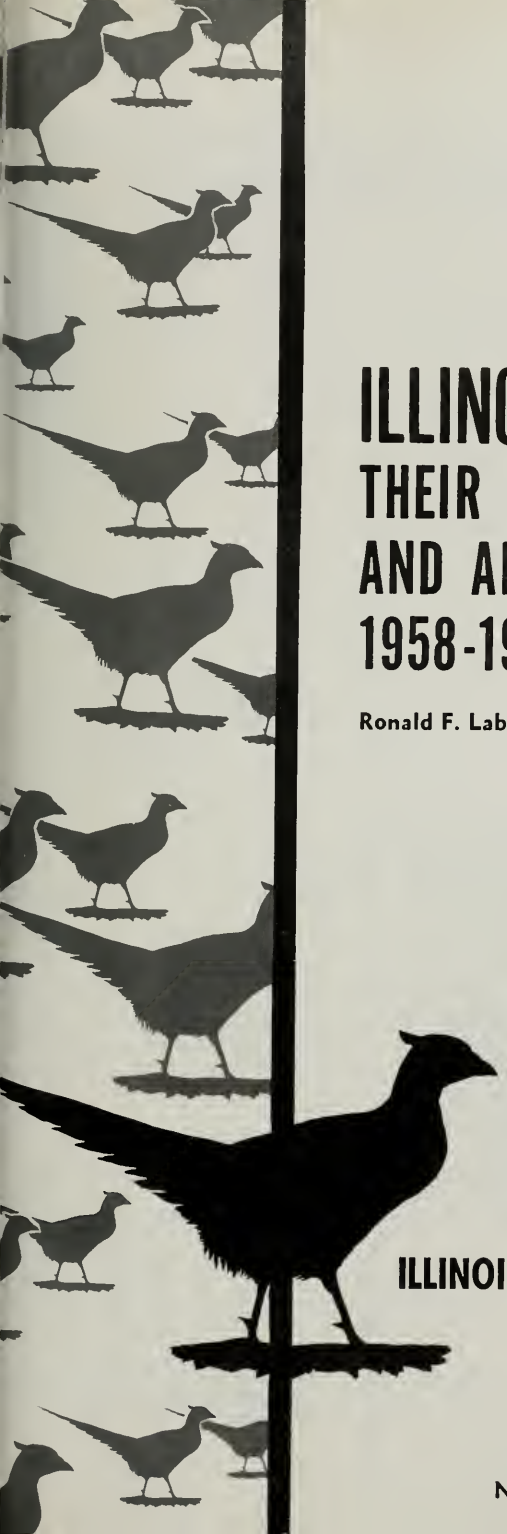

# ILLINOIS PHEASANTS: THEIR DISTRIBUTION AND ABUNDANCE, 1958-1973

Ronald F. Labisky

ILLINOIS NATURAL HISTORY SURVEY
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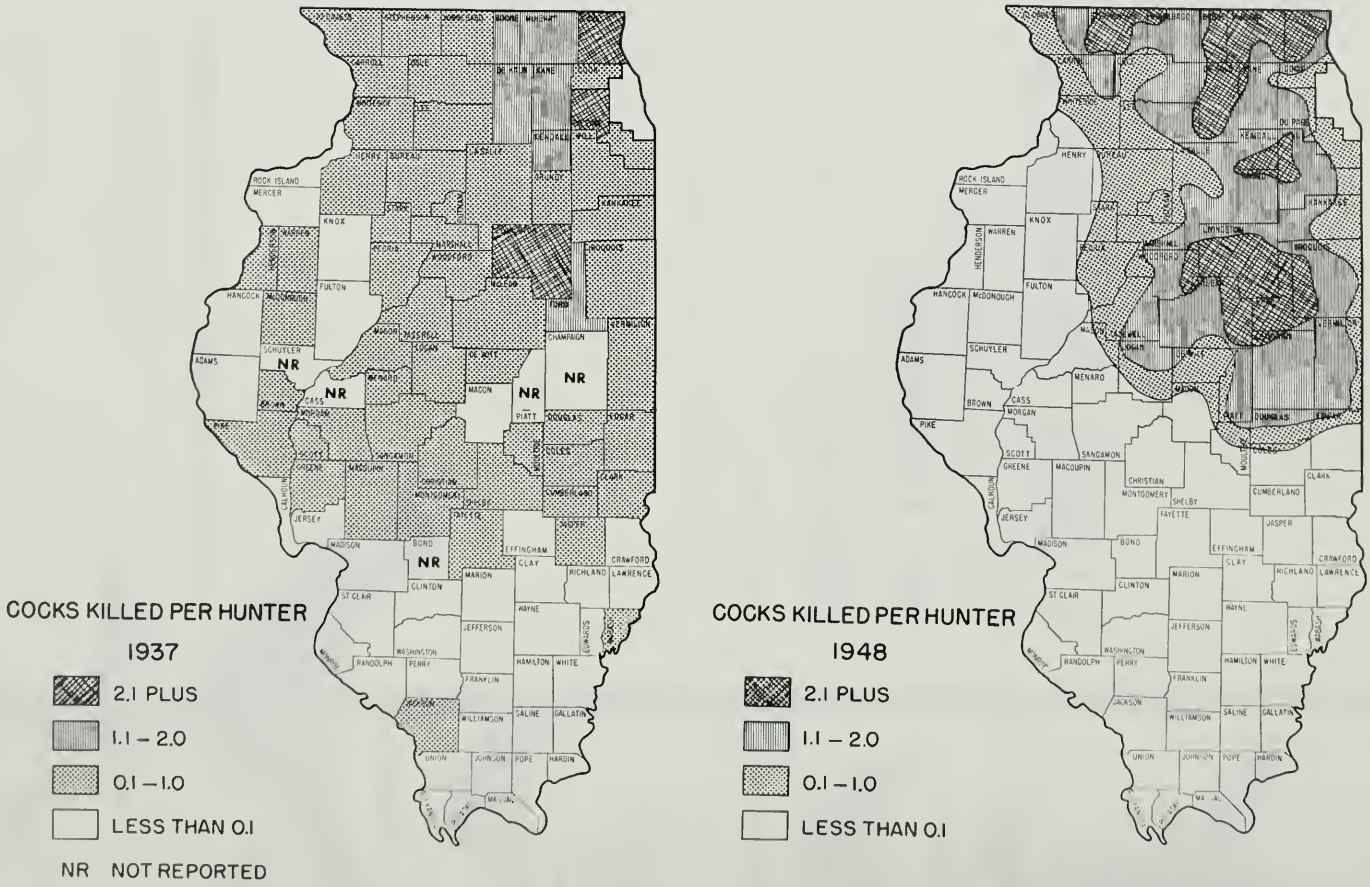


Fig. 1. — Distribution and abundance of pheasants in Illinois as mapped from data obtained (left) from hunting license questionnaires for the 1937 pheasant hunting season (after Carl O. Mohr, unpublished) and (right) from posthunting season questionnaires distributed to hunters after the 1948 hunting season (after Robertson 1958:9). These maps may misrepresent slightly the statewide patterns of pheasant abundance because some hunters probably reported their seasonal kill of cocks for their county of residence rather than for the counties in which they actually bagged the cocks.

# ILLINOIS PHEASANTS: THEIR DISTRIBUTION AND ABUNDANCE, 1958–1973

**Ronald F. Labisky**

Illinois, an agricultural, industrial, and transportation mecca with a human population density that averages about 200 people per square mile, still ranks among the five top states in the USA in the sport harvest of cock pheasants (*Phasianus colchicus*). The annual harvest of cocks in Illinois by hunters averaged 892,000 for the 16 years, 1958–73, and in 3 years — 1962, 1963, and 1973 — topped 1,000,000; correspondingly, the number of recreational trips that pheasant hunters expended in pursuit of their quarry averaged 1,156,000 annually for these same 16 years (Preno & Labisky 1971:20, and unpublished data). The revenues, exclusive of license fees, generated by pheasant hunting in Illinois currently approach $20 million annually (Preno & Labisky, unpublished data).

Although the pheasant is an important aesthetic, recreational, and economic resource in Illinois, it does not occupy all sectors of the state. First introduced into Illinois about 80 years ago (Robertson 1958:3), this exotic species has established self-maintaining populations only in northern and east-central Illinois. It has never established persistent populations in the west-central and southern portions of the state. Within its range, the pheasant has exhibited temporal changes in population abundance. The state's major center of pheasant abundance, at least since the late 1930's, has been located in the intensively cultivated cash-grain area of east-central Illinois (Fig. 1-5).

This paper documents the distribution and abundance of pheasants in Illinois for 1973, as observed by rural mail carriers, and presents a comparison of these findings with similar statistics for 1958, 1963, and 1968. The statistics relating to the distribution and abundance of pheasants in 1958, 1963, and 1968, have been published, in part, in previous publications (Greeley et al. 1962; Labisky & Anderson 1965; Labisky 1969).

## ACKNOWLEDGMENTS

Sincere appreciation is extended to the hundreds of postmasters and rural letter carriers in Illinois who voluntarily participated in the 1973 and previous censuses of pheasants; their cooperation was outstanding. Earl Gum, President, Illinois Rural Letter Carriers Association, Keysport, Ill., and Clifford Edwards, Regional Representative, National Rural Letter Carriers Association, Enfield, Ill., offered advice regarding project operations. Personnel of the U.S. Postal Service, Central Region, Chicago, Ill., who aided the project in numerous ways, included: Clarence B. Gels, Regional Postmaster General; J. G. Schraer, Assistant Postmaster General; Herbert Lehman, Delivery Division Director; John S. Humphrey, Delivery and Collection Officer; Robert C. Mitchell, Delivery Service Specialist; and Anthony Cira, Delivery Products Specialist.

My colleagues at the Illinois Natural History Survey assisted in various ways: Cynthia S. Ridley analyzed many of the data; William L. Anderson, Glen C. Sanderson, and Helen C. Schultz contributed technical and editorial advice; and O. F. Glissendorf edited the manuscript. William L. Preno, Illinois Department of Conservation, Springfield, offered technical advice and read the manuscript. Hope Labisky, Dawn A. Labisky, and Holly H. Labisky provided the many hours of clerical assistance required to expedite a product of this nature. The sketch of the pheasant appearing on the cover was contributed by Glenn D. Chambers.

## METHODS

All statistics on the distribution and abundance of pheasants in Illinois, as reported in this paper, were *voluntarily* collected by rural mail carriers during 5-day census periods in April of 1958, 1963, 1968, and 1973. These censuses were restricted to the 74 northernmost counties of the state; the 28 southernmost of Illinois's 102 counties have never been occupied by self-maintaining populations of wild pheasants (Greeley et al. 1962:5). The censuses were conducted in April because Greeley et al. (1962:5) concluded: "The conditions for observing pheasants [in Illinois] are probably more nearly constant from year to year in April than in any other month." The specific 5-day census periods (Monday through Friday) were 21–25 April 1958, 22–26 April 1963 and 1968, and 23–27 April 1974. The daily census hours were principally between 0700 and 1200 hours (CST) in all years.

Five days prior to the beginning of each of the censuses, a packet of materials relating to the census was mailed to the postmaster of each post office having one or more rural routes in the 74 counties to be censused. The packet contained a letter of instruction to the postmaster and a letter of instruction plus a postal-card questionnaire for each rural mail carrier. The postmaster was requested to distribute the census instructions and questionnaire to each of his rural

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carriers. Each carrier was asked to report the counties and political townships in which his route was located, the length of his route in miles, and the number of pheasants (cocks and hens) observed along the route on each of the 5 consecutive days specified in the instructions.

In the analysis of data, the number of miles driven and the number of pheasants seen during the 5-day census period were used to calculate the number of pheasants observed per 100 miles of driving in each township and county. When the route of a mail carrier extended into two or more townships, the number of miles driven and number of pheasants observed were divided equally among the number of townships that he reported on his questionnaire. The variables that influence the counts of pheasants by rural mail carriers have been discussed by Greeley et al. (1962:4–5).

The information reported by mail carriers during each census was the result of the initial request only; follow-up mailings to prompt the return of questionnaires were unnecessary (Table 1). After each census, all postmasters and mail carriers participating in the census were sent a summary of the census findings and a letter thanking them for their cooperation.

## FINDINGS

The relative abundance of pheasants as observed by rural letter carriers in the 74 northernmost counties of Illinois decreased from 5.5 to 4.9 birds per 100 miles of driving, or 11 percent, between April, 1968, and April, 1973; the reported decline was much greater for hens than for cocks (Table 1). Comparatively, the 1958 and 1963 censuses yielded 7.6 and 9.9 pheasants per 100 miles of driving. Thus, pheasant populations in Illinois during the past 15 years exhibited a marked increase (30 percent) in abundance between 1958 and 1963, and a substantial decline (50 percent) in the decade between 1963 and 1973. Pheasant abundance, as recorded by these censuses, was 36 percent less in 1973 than it was in 1958.

In recent years, differences in the temporal patterns of pheasant abundance have permitted the division of Illinois's occupied pheasant range into three distinctive sectors of abundance: northern, east-central, and south-central. The east-central portion of Illinois has, since the mid-1930's, been representative of the state's best pheasant range (Fig. 1–5; Preno & Labisky 1971:15–24); it still contained the center of greatest pheasant abundance in the state in 1973 (Table 2). Pheasant numbers, however, have waned sharply in this intensively cultivated cash-grain belt of east-central Illinois. In both 1958 and 1963, the contiguous counties of Livingston, Ford, Iroquois, McLean, and Champaign — in that order — were the five top-ranked counties of the state with respect to the relative abundance of pheasants (Table 2). By 1968, only Livingston and Ford counties were

TABLE 1. — Comparative statistics obtained from rural mail carrier censuses of pheasants in the 74 northernmost counties (including 1,257 townships) of Illinois during designated 5-day census periods in April 1958, 1963, 1968, and 1973.

| Category | 1958 | 1963 | 1968 | 1973 |
|---|---|---|---|---|
| Questionnaires | | | | |
| Number mailed | 1,368 | 1,320 | 1,256 | 1,207 |
| Number returned | 1,053(77)[a] | 1,202(91) | 1,143(91) | 1,120(93) |
| Number usable | .. | 1,150(87) | 1,105(88) | 1,078(89) |
| Number of townships reported (of 1,257) | 1,221(97) | 1,222(97) | 1,214(97) | 1,199(95) |
| Total miles driven | 250,129 | 318,605 | 333,070[b] | 351,150[b] |
| Miles driven per township reported | 205 | 261 | 268 | 281 |
| Cocks observed | 10,047 | 17,204 | 10,706 | 10,898 |
| Hens observed | 9,044 | 14,446 | 7,545 | 6,454 |
| *Total pheasants observed* | *19,091* | *31,670* | *18,251* | *17,352* |
| Sex ratio: hens per cock | 0.9 | 0.8 | 0.7 | 0.6 |
| Cocks per 100 miles | 4.0 | 5.4 | 3.2 | 3.1 |
| Hens per 100 miles | 3.6 | 4.5 | 2.3 | 1.8 |
| *Total pheasants per 100 miles* | *7.6* | *9.9* | *5.5* | *4.9* |

[a] Percentages are given in parentheses.
[b] In 1968 and 1973, respectively, 8,233 and 14,578 miles of driving were, for lack of township designations, assigned only to county

TABLE 2. — Comparative abundance of pheasants as reported by rural mail carriers in the 74 northernmost counties of Illinois in April 1958, 1963, 1968, and 1973. The 28 southernmost counties of Illinois are not occupied by wild pheasants.

| County | County Rank | | | | Total Pheasants Reported | | | | Pheasants Per 100 Miles | | | | Percentage Change Per 100 Miles: |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1958 | 1963 | 1968 | 1973 | 1958 | 1963 | 1968 | 1973 | 1958 | 1963 | 1968 | 1973 | 1968 to 1973 |
| Ford | 2 | 2 | 3 | 1 | 1,569 | 2,696 | 1,444 | 1,112 | 50.7 | 75.8 | 29.2 | 30.2 | +3 |
| Livingston | 1 | 1 | 1 | 2 | 3,634 | 8,181 | 3,006 | 2,331 | 56.4 | 99.1 | 33.3 | 25.2 | −24 |
| Logan | 16 | 17 | 2 | 3 | 305 | 345 | 1,543 | 1,006 | 8.3 | 9.7 | 31.1 | 20.7 | −33 |
| Iroquois | 3 | 3 | 9 | 4 | 1,991 | 3,674 | 1,373 | 1,586 | 28.9 | 43.4 | 15.7 | 17.8 | +13 |
| Moultrie | 37 | 15 | 5 | 5 | 27 | 301 | 554 | 475 | 1.4 | 11.3 | 18.1 | 15.9 | −12 |
| De Witt | 19 | 11 | 10 | 6 | 190 | 547 | 405 | 548 | 6.5 | 16.1 | 12.2 | 14.9 | +22 |
| Champaign | 5 | 5 | 8 | 7 | 1,641 | 3,018 | 1,371 | 1,097 | 25.7 | 35.6 | 16.8 | 13.3 | −21 |
| McLean | 4 | 4 | 7 | 8 | 2,071 | 3,868 | 1,324 | 1,064 | 27.7 | 43.1 | 17.0 | 12.0 | −29 |
| Macon | 42 | 19 | 17 | 9 | 27 | 326 | 421 | 653 | 0.7 | 6.6 | 8.5 | 12.0 | +41 |
| Piatt | 12 | 6 | 6 | 10 | 305 | 986 | 402 | 394 | 11.8 | 34.6 | 17.7 | 11.9 | −33 |
| Vermilion | 6 | 16 | 13 | 11 | 966 | 728 | 632 | 728 | 17.3 | 11.1 | 9.8 | 10.9 | +11 |
| Mason | 30 | 20 | 21 | 12 | 66 | 148 | 184 | 361 | 2.7 | 5.4 | 6.4 | 10.1 | +58 |
| Woodford | 7 | 7 | 4 | 13 | 718 | 852 | 787 | 464 | 15.6 | 21.8 | 21.4 | 9.2 | −57 |
| Douglas | 15 | 13 | 16 | 14 | 204 | 487 | 244 | 310 | 8.7 | 14.3 | 8.6 | 8.6 | 0 |
| Kankakee | 8 | 8 | 12 | 15 | 706 | 973 | 538 | 494 | 15.3 | 19.7 | 10.1 | 8.4 | −17 |
| Grundy | 10 | 10 | 14 | 16 | 323 | 429 | 283 | 304 | 12.5 | 17.7 | 9.3 | 8.3 | −11 |
| La Salle | 11 | 14 | 15 | 17 | 873 | 1,233 | 820 | 625 | 12.4 | 13.8 | 9.1 | 7.5 | −18 |
| Kendall | 17 | 22 | 23 | 18 | 135 | 131 | 148 | 152 | 7.4 | 4.8 | 5.0 | 7.4 | +48 |
| Christian | 52 | 32 | 24 | 19 | 9 | 67 | 204 | 362 | 0.2 | 1.2 | 3.5 | 5.8 | +66 |
| Carroll | 33 | 33 | 32 | 20 | 40 | 39 | 65 | 174 | 1.9 | 1.1 | 2.0 | 5.4 | +170 |
| Lee | 20 | 26 | 27 | 21 | 243 | 147 | 131 | 229 | 6.2 | 3.1 | 2.8 | 4.9 | +75 |
| Tazewell | 21 | 18 | 20 | 22 | 284 | 343 | 356 | 193 | 6.1 | 8.5 | 6.5 | 4.4 | −32 |
| Edgar | 24 | 24 | 22 | 23 | 190 | 214 | 258 | 225 | 5.0 | 4.2 | 5.3 | 4.1 | −23 |
| De Kalb | 14 | 21 | 19 | 24 | 367 | 261 | 396 | 209 | 10.4 | 5.2 | 8.0 | 4.1 | −49 |
| Winnebago | 36 | 37 | 40 | 25 | 46 | 22 | 39 | 150 | 1.5 | 0.6 | 1.0 | 3.9 | +290 |
| Marshall | 9 | 12 | 18 | 26 | 328 | 395 | 176 | 96 | 14.6 | 15.0 | 8.2 | 3.3 | −60 |
| Boone | 23 | 35 | 30 | 27 | 112 | 21 | 35 | 84 | 5.1 | 1.0 | 2.3 | 3.1 | +35 |
| Ogle | 35 | 41 | 31 | 28 | 76 | 26 | 119 | 179 | 1.5 | 0.5 | 2.0 | 3.0 | +50 |
| Menard | 43 | 34 | 29 | 29 | 8 | 18 | 49 | 66 | 0.6 | 1.0 | 2.3 | 3.0 | +30 |
| Putnam | 13 | 9 | 11 | 30 | 81 | 131 | 105 | 28 | 10.8 | 19.1 | 10.6 | 2.9 | −73 |
| Kane | 28 | 28 | 33 | 31 | 116 | 98 | 67 | 124 | 3.6 | 2.7 | 1.7 | 2.8 | +65 |
| McHenry | 18 | 25 | 25 | 32 | 280 | 200 | 183 | 151 | 7.0 | 3.9 | 3.4 | 2.5 | −26 |
| Whiteside | 48 | 47 | 42 | 33 | 15 | 13 | 39 | 129 | 0.3 | 0.3 | 0.8 | 2.5 | +212 |
| Will | 26 | 27 | 28 | 34 | 208 | 179 | 181 | 212 | 4.6 | 3.0 | 2.7 | 2.5 | −7 |
| Coles | 31 | 29 | 26 | 35 | 60 | 86 | 128 | 116 | 2.0 | 2.3 | 3.2 | 2.5 | −22 |
| Shelby | 54 | 39 | 43 | 36 | 11 | 35 | 40 | 168 | 0.2 | 0.5 | 0.7 | 2.3 | +229 |
| Stephenson | 22 | 44 | 41 | 37 | 201 | 18 | 38 | 94 | 5.4 | 0.3 | 0.9 | 2.2 | +144 |
| Cook | 29 | 30 | 35 | 38 | 92 | 61 | 54 | 77 | 2.8 | 1.6 | 1.4 | 2.2 | +57 |
| Du Page | 25 | 23 | 37 | 39 | 93 | 117 | 35 | 41 | 4.9 | 4.3 | 1.2 | 1.8 | +50 |
| Bureau | 38 | 42 | 39 | 40 | 66 | 29 | 70 | 115 | 1.3 | 0.5 | 1.0 | 1.7 | +70 |
| Morgan | 57 | 48 | 44 | 41 | 2 | 5 | 14 | 60 | 0.1 | 0.2 | 0.4 | 1.6 | +300 |
| Sangamon | 47 | 38 | 34 | 42 | 17 | 43 | 101 | 93 | 0.3 | 0.6 | 1.5 | 1.3 | −13 |
| Jo Daviess | 39 | 45 | 48 | 43 | 37 | 15 | 11 | 54 | 1.2 | 0.3 | 0.2 | 1.2 | +500 |
| Lake | 32 | 31 | 38 | 44 | 60 | 66 | 54 | 59 | 2.0 | 1.2 | 1.1 | 1.1 | 0 |
| Cass | 53 | 36 | 36 | 45 | 4 | 18 | 32 | 19 | 0.2 | 0.8 | 1.2 | 0.8 | −33 |
| Henry | 34 | 46 | 46 | 46 | 88 | 19 | 16 | 49 | 1.8 | 0.3 | 0.3 | 0.7 | +133 |
| Stark | 27 | 40 | 49 | 47 | 63 | 9 | 7 | 13 | 4.2 | 0.5 | 0.2 | 0.5 | +150 |
| Clark | 56 | 51 | 65 | 48 | 3 | 5 | 1 | 14 | 0.1 | 0.1 | 0.0 + | 0.4 | +[b] |
| Montgomery | 60 | 54 | 47 | 49 | 3 | 4 | 16 | 19 | 0.1 | 0.1 | 0.3 | 0.3 | 0 |
| Mercer | 55 | 43 | 45 | 50 | 2 | 15 | 14 | 8 | 0.1 | 0.5 | 0.4 | 0.3 | −25 |
| Rock Island | 59 | 52 | 53 | 51 | 3 | 2 | 3 | 6 | 0.1 | 0.1 | 0.1 | 0.2 | +50 |
| Henderson[a] | 45 | | 57 | 52 | 10 | 0 | 1 | 5 | 0.5 | 0.0 | 0.0 + | 0.2 | + |
| Macoupin | | 59 | 50 | 53 | 0 | 1 | 8 | 8 | 0.0 | 0.0 + | 0.1 | 0.1 | 0 |
| Warren | 49 | 55 | 60 | 54 | 9 | 3 | 2 | 4 | 0.3 | 0.1 | 0.0 + | 0.1 | + |
| Effingham | 41 | 56 | 56 | 55 | 24 | 2 | 2 | 4 | 0.8 | 0.1 | 0.0 + | 0.1 | + |
| Knox | 62 | 57 | 55 | 56 | 2 | 3 | 2 | 3 | 0.0 + | 0.1 | 0.1 | 0.1 | 0 |
| Schuyler | | | | 57 | 0 | 0 | 0 | 2 | 0.0 | 0.0 | 0.0 | 0.1 | + |
| Fulton | 64 | | 52 | 58 | 1 | 0 | 5 | 2 | 0.0 + | 0.0 | 0.1 | 0.0 + | — |
| Hancock | | | 58 | 59 | 0 | 0 | 2 | 2 | 0.0 | 0.0 | 0.0 + | 0.0 + | 0 |
| Peoria | 46 | 49 | 54 | 60 | 16 | 6 | 3 | 1 | 0.4 | 0.1 | 0.1 | 0.0 + | — |
| Cumberland | 50 | 58 | 51 | 61 | 6 | 2 | 3 | 1 | 0.3 | 0.1 | 0.1 | 0.0 + | — |

(Continued on page 6.)

Table 2.—(Continued.)

| County | County Rank | | | | Total Pheasants Reported | | | | Pheasants Per 100 Miles | | | | Percentage Change Per 100 Miles[b] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1958 | 1963 | 1968 | 1973 | 1958 | 1963 | 1968 | 1973 | 1958 | 1963 | 1968 | 1973 | 1968 to 1973 |
| Jasper | 40 | 50 | 59 | 62 | 33 | 4 | 2 | 1 | 1.0 | 0.1 | 0.0 + | 0.0 + | 0 |
| McDonough | 44 | | 63 | 63 | 19 | 0 | 1 | 1 | 0.6 | 0.0 | 0.0 + | 0.0 + | 0 |
| Fayette | 61 | | 66 | | 4 | 0 | 1 | 0 | 0.1 | 0.0 | 0.0 + | 0.0 | — |
| Crawford | | | 61 | | 0 | 0 | 1 | 0 | 0.0 | 0.0 | 0.0 + | 0.0 | — |
| Adams | | | 62 | | 0 | 0 | 1 | 0 | 0.0 | 0.0 | 0.0 + | 0.0 | — |
| Bond | | | 64 | | 0 | 0 | 1 | 0 | 0.0 | 0.0 | 0.0 + | 0.0 | — |
| Greene | 58 | 53 | | | 2 | 3 | 0 | 0 | 0.1 | 0.1 | 0.0 | 0.0 | 0 |
| Jersey | | 60 | | | 0 | 1 | 0 | 0 | 0.0 | 0.0 + | 0.0 | 0.0 | 0 |
| Madison[c] | | 61 | | | 0 | 1 | 0 | 0 | 0.0 | 0.0 + | 0.0 | 0.0 | 0 |
| Clay | 51 | | | | 5 | 0 | 0 | 0 | 0.3 | 0.0 | 0.0 | 0.0 | 0 |
| Pike | 63 | | | | 1 | 0 | 0 | 0 | 0.0 + | 0.0 | 0.0 | 0.0 | 0 |
| Brown | | | | | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |
| Scott | | | | | 0 | 0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0.0 | 0 |

[a] No rank was assigned to counties from which pheasants were absent in year of census.

[b] Percentage change presented only as + (gain), — (loss), or 0 (no change) for those counties from which the abundance of pheasants was recorded as 0.0 or 0.0+ per 100 miles of driving in either 1968 or 1973.

[c] Richland County was censused in place of Madison County in 1958.

included among the five top-ranked counties. In 1973, Iroquois County again joined with Ford and Livingston counties to rank among the top five pheasant counties in the state. The relative abundance of pheasants per 100 miles of driving in these five counties, collectively, was 37.9 in 1958, 59.4 in 1963, 22.4 in 1968, and 18.5 in 1973. Thus, following an increase in abundance of 57 percent between 1958 and 1963, pheasant numbers in these five east-central Illinois counties declined by 69 percent between 1963 and 1973. This drastic decline is vividly illustrated by the fact that Livingston, Ford, Iroquois, McLean, and Champaign counties contained 20 townships with an abundance of pheasants that exceeded 100 birds per 100 miles of driving in 1963 but did not have a single township with that level of abundance in either 1968 or 1973. In 1973, only one township in the five counties was even represented by an abundance level that exceeded 50 pheasants per 100 miles of driving. Also, in the northwestern portion of the east-central sector, three counties which were strong-ranking pheasant counties in the 1950's and 1960's — Woodford, Marshall, and Putnam — suffered declines that well exceeded 50 percent between 1968 and 1973.

Pheasant populations in northern Illinois, a sector characterized by secondary centers of pheasant abundance in the 1940's (Fig. 1), generally fared poorly during the 1950's and 1960's (Fig. 2–4). In the 10 years between 1958 and 1968, only three northern Illinois counties — Carroll, Ogle, and Whiteside — registered gains, all very modest, in pheasant abundance; in this same decade, losses in abundance exceeded 50 percent in Jo Daviess, Stephenson, Boone, McHenry, Kane, Cook, Du Page, Lee, Henry, and Stark. However, some encouraging gains in abundance in this northern portion of Illinois's pheasant range were registered in the early 1970's. Between 1968 and 1973, pheasant numbers increased from two- to five-fold in the counties of Carroll, Winnebago

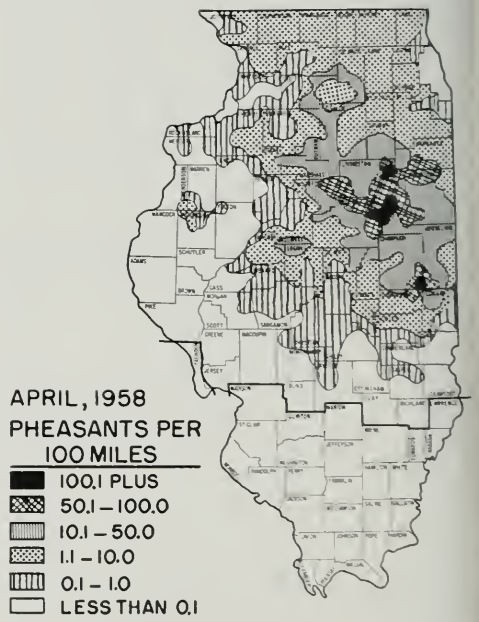


Fig. 2. — Distribution and abundance of pheasants in Illinois as mapped from township statistics obtained by a rural mail carrier census, April, 1958 (after Labisky & Anderson 1965). Counties below the heavy line were not censused.

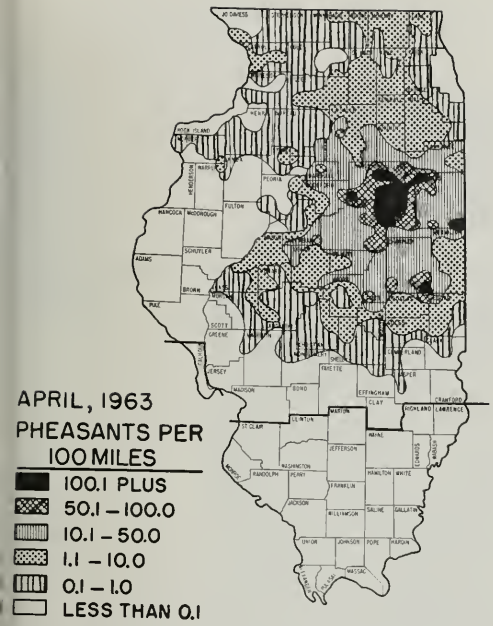


Fig. 3. — Distribution and abundance of pheasants in Illinois as mapped from township statistics obtained by a rural mail carrier census, April, 1963 (after Labisky & Anderson 1965). Counties below the heavy line were not censused.

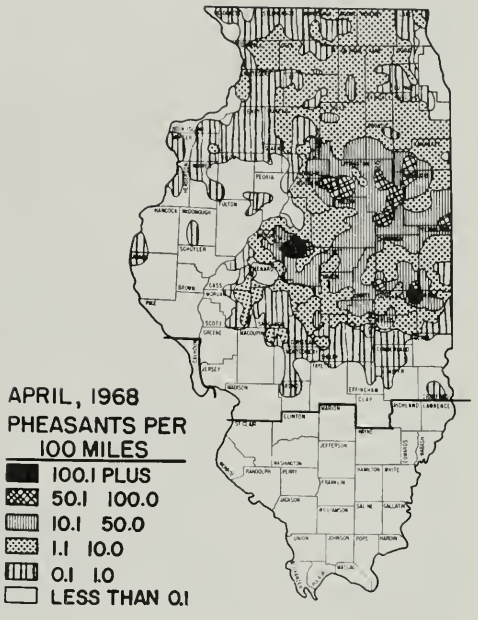


Fig. 4. — Distribution and abundance of pheasants in Illinois as mapped from township statistics obtained by a rural mail carrier census, April, 1968 (after Labisky 1969). Counties below the heavy line were not censused.

Whiteside, Stephenson, Jo Daviess, Henry, and Stark; lesser gains occurred concurrently in the counties of Kendall, Lee, Boone, Ogle, Kane, Bureau, Du Page — and even Cook (Table 2). Thus, despite some declines in pheasant abundance in De Kalb, McHenry, La Salle, Will, and Grundy counties, northern Illinois posted a notable increase in pheasant abundance between 1968 and 1973, the first real upswing in pheasant numbers in this portion of the state in more than two decades. However, even at 1973 population levels, pheasant abundance in northern Illinois was only about one-fifth of that in east-central Illinois.

The most notable change in pheasant abundance in the state within the past two decades has occurred in south-central Illinois, which borders and extends southwesterly from the east-central sector of the state. In 1973, five of these south-central counties — Logan, Moultrie, De Witt, Macon, and Piatt — occupied positions among the 10 top-ranked pheasant counties of Illinois. The surge in the relative abundance of pheasants in these five counties was illustrated by the upward shift in their respective county rankings between 1958 and 1973: Logan, 16 to 3; Moultrie, 37 to 5; De Witt, 19 to 6; Macon, 42 to 9; and Piatt, 12 to 10 (Table 2). The only six counties in the state that posted consecutive gains in abundance during each 5-year interval from 1958 through 1973 were located in this south-central block of counties. These six counties — Mason, Menard, Shelby, Morgan, Macon, and Christian — were characterized by increases in pheasant abundance that ranged from 3- to 28-fold between 1958 and 1973. The overall status of pheasants in this south-central sector changed little during the 5 years, 1968–73, in that the gains in pheasant numbers recorded for De Witt, Macon, Mason, Christian, Menard, Shelby, and Morgan counties were cancelled by losses in abundance that occurred in Logan, Moultrie, Piatt, Tazewell, and Sangamon counties. Certainly, however, the population of pheasants that occurred at the junction of Christian, Macon, and Shelby counties in 1973 represented the greatest density of wild pheasants ever located so far south in Illinois (Fig. 5).

There has been no change in the range occupied by pheasants in Illinois during the past two decades, or perhaps longer. Although the abundance of pheasants along, but within, the southerly and southwesterly boundaries of the bird's occupied range in Illinois did increase during the 1960's and early 1970's, the range boundaries *per se* have remained geographically stable. In 1973, as in previous years, west-central Illinois was characterized by small, scat-

tered flocks of pheasants (Fig. 2–5). These flocks, which have never demonstrated strong geographic permanence or numerical persistence, have been maintained, at least partially, by sporadic releases of propagated pheasants.

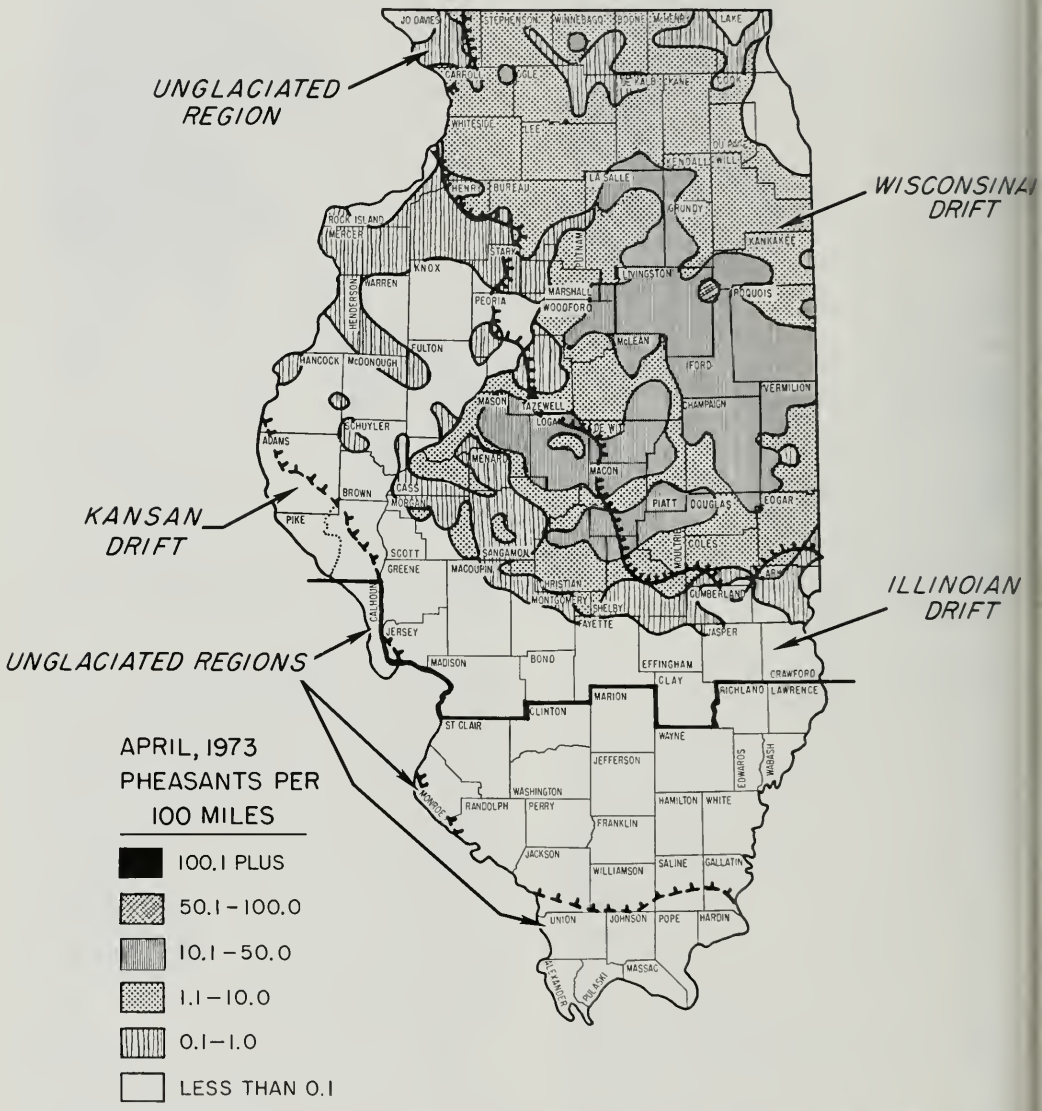


Fig. 5. — Distribution and abundance of pheasants in Illinois as mapped from township statistics obtained by a rural mail carrier census, April, 1973. (In 1973 there were no townships in the 100.1 plus category of abundance.) Counties below the heavy line were not censused. The solid and broken lines with projections designate the terminal boundaries of the Wisconsinan and Illinoian ice sheets, respectively. A small region of exposed Kansan drift is located in southwest-central Illinois.

## DISCUSSION

The all-time peak (through 1973) in pheasant abundance in Illinois was attained in 1962 or 1963 (Greeley et al. 1962; Labisky 1969; Preno & Labisky 1971:17, 19–20, and unpublished data). The low in pheasant abundance, as recorded during the past two decades, occurred in 1966 (Preno & Labisky 1971:17, 19–20, and unpublished data). In 1973, the abundance of pheasants in the state was about half of the population high reached in 1963, and just slightly above the recent low in pheasant numbers recorded in 1966.

Although the past decade, 1963–1973, has been characterized by declining pheasant abundance in Illinois, no sector of Illinois has been marked by a greater proportional diminishment in pheasant numbers than has east-central Illinois, the long-standing center of pheasant abundance in the state. In this intensively cultivated cash-grain region, which still harbors the state's best pheasant populations, abundance plummeted by about two-thirds between 1963 and 1973. In northern Illinois, which boasted of secondary centers of abundance in the 1940's, pheasant numbers sagged during the 1950's and 1960's, but then advanced conspicuously in the early 1970's; this sector of pheasant range, however, still contained, in 1973, only about one-fifth as many pheasants as did the state's best pheasant range in east-central Illinois. South-central Illinois, much of which was classified as mediocre to poor pheasant range in the early 1960's, exhibited thriving pheasant populations by the early 1970's. In 1973, the abundance of pheasants in some south-central counties rivaled that in their east-central Illinois counterparts.

The general depression in pheasant abundance in Illinois that occurred during the middle and late 1960's and early 1970's was precipitated, to a significant extent, by changing agricultural practices, principally the accelerated production of row crops, corn and soybeans, in continuous culture. The widespread increases in the acreages planted to corn and soybeans demanded corresponding decreases in the acreages of tame hays, small grains, and even fencerows, the prime nesting and wintering habitats for pheasants in Illinois (Labisky 1968:335–389; Joselyn et al. 1968:217–218). To illustrate, in the 44 Illinois counties from which pheasants were observed at a rate greater than 1 pheasant per 100 miles of driving in 1973, the collective acreage occupied by corn and soybeans increased from 46 to 56 percent between 1962 and 1972, a gain of 22 percent (Illinois Cooperative Crop Reporting Service 1963, 1973). And, in the five major pheasant counties of east-central Illinois — Livingston, Ford, Iroquois, McLean, and Champaign — where losses in pheasant abundance have been most severe, the acreage of row crops increased from 59 percent in 1962 to 73 percent in 1972, an advance of 20 percent. Thus, within the occupied pheasant range in Illinois, the landscape is currently dominated by corn and soybeans and thus offers little habitat diversity for the bird.

Although the increased production of row crops in Illinois has certainly had an adverse effect on pheasant numbers in the most intensively farmed sectors of the state during the past decade, it may have contributed also to a pattern of uniformity in pheasant abundance throughout the state's occupied pheasant range. Prior to the early 1960's, before the major shift toward the accelerated production of row crops, Illinois was characterized by conspicuous "hot spots" in pheasant abundance, and by large segments of occupied range with meager numbers of pheasants (Table 3). By the early 1970's after row crops blanketed most Illinois farmland, the "hot spots" of pheasant abundance had essentially disappeared; however, there was a concurrent increase in the proportion of the state occupied by good, though not high-density, levels of pheasant abundance. To illustrate, between 1963 and 1973 the number of townships occupied by pheasants increased by 11 percent, but pheasant abundance declined by 50 percent. Yet the effective change in abundance throughout much of the range in Illinois was not as drastic as it first appeared. In 1963, 61 of the state's 1,612 townships contained densities of pheasants that exceeded 50 pheasants per 100 miles of driving; collectively, these 61 townships accounted for 53 percent of all pheasants observed in the 1963 census. In 1973, only 1 Illinois township yielded a

TABLE 3. — Relative abundance of pheasants, as obtained from censuses by rural mail carriers, in the 1,612 townships of Illinois in April 1958, 1963, 1968, and 1973.

| | Grouping of Townships by Pheasant Abundance (Birds Per 100 Miles of Driving) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | >50.1 Pheasants | | 10.1–50.0 Pheasants | | 1.1–10.0 Pheasants | | 0.1–1.0 Pheasants | | No Pheasants | |
| Year | Number | Percent | Number | Percent | Number | Percent | Number | Percent | Number[a] | Percent |
| 1958 | 33 | 2 | 152 | 9 | 371 | 23 | 241 | 15 | 815 | 51 |
| 1963 | 61 | 4 | 156 | 10 | 266 | 16 | 280 | 17 | 849 | 53 |
| 1968 | 21 | 1 | 166 | 10 | 319 | 20 | 271 | 17 | 835 | 52 |
| 1973 | 1 | <1 | 180 | 11 | 444 | 27 | 225 | 14 | 762 | 47 |

[a] Comprises all townships, including those from the 28 nonpheasant counties of southern Illinois (Greeley et al. 1962), from which < 0.1 pheasant was observed per 100 miles of driving.

density of pheasants greater than 50 pheasants per 100 miles of driving; it contained 1 percent of the total number of pheasants observed in the 1973 census. Excluding the "hot spot" townships, there were 15,021 pheasants observed in 702 townships in 1963, and 17,181 pheasants observed in 849 townships in 1973. Thus, except for the lack of several high-density "hot spots" for pheasants in 1973, the abundance of pheasants throughout most of the occupied range in Illinois was about the same in 1973 as in 1963. This lack of change in pheasant abundance throughout most of the occupied range in Illinois tends to explain the similarity in the hunter harvest of pheasants in 1963 (1,064,000 cocks) and in 1973 (1,073,000 cocks) despite the intervening 50 percent decline in the state's total pheasant population. Thus, the recreational potential of a moderately abundant and well distributed pheasant population appears equivalent, if not superior, to a high-density population with restricted distribution.

The most dramatic change in pheasant abundance in Illinois in recent years has been the buildup in pheasant numbers along the southwestern boundary of the state's occupied range. Here, pheasant populations have surged from a scattering of birds to thriving, huntable populations in the span of the past 15 years. Notable in this respect are Christian and Shelby counties in which pheasant abundance increased manyfold during the 1960's and early 1970's. The populations in these counties represent the greatest abundance of pheasants ever located so far south in Illinois. Yet, despite this tremendous increase in abundance of pheasants on the fringe of the bird's contiguous range in south-central Illinois, there has been no invasion of unoccupied range.

Eruptions in pheasant abundance within the heartland of the bird's range have been the trademark of the pheasant in North America. In the past decade or so, however, such eruptions in abundance have been most prevalent in sectors of range marked by meager pheasant populations. Recent pheasant "explosions" in northwestern Missouri (Chambers 1970), and particularly in southwestern Iowa (Klonglan 1962; Farris 1973), have been spectacular and persistent. And, as in Illinois, the increases in abundance in these states did not involve the pheasant's invasion of previously unoccupied range, but rather represented a sudden buildup in numbers from sparse, but longstanding, populations. These population buildups in poor or "marginal" pheasant range during the 1960's and early 1970's represent the greatest abundance of pheasants ever recorded so far south in the Midwest.

An additional feature of the recent eruptions in pheasant abundance in south-central Illinois, southwestern Iowa, and northwestern Missouri is that none occurred on Wisconsinan-age glacial drift. It has been more than 40 years since Leopold (1931:125–126) noted that the successful establishment of pheasants in the north-central states appeared to be confined to drift deposited by the Wisconsinan glacier, the most recent ice sheet. This observation eventually gave rise to the hypothesis that it was the relative availability of minerals, particularly calcium, in plants or grit found in the Wisconsinan drift, in contrast to older drifts (Nebraskan, Kansan, or Illinoian), that was essential to the establishment of self-maintaining pheasant populations (see review by Labisky et al. 1964). Differences in the mineral profiles of both pheasants and their environment have been documented for Wisconsinan and Illinoian drift (Jones et al. 1968; Anderson & Stewart 1969, 1973). However, the causal effects of surpluses or deficits of chemical elements on the distribution and abundance of pheasants is anything but resolved. Appropriate therefore is the statement by Anderson & Stewart (1969:269): "If inorganic ions are limiting the distribution and abundance of pheasants in the Midwest, combinations of two or more elements, and not individual elements, are possibly — if not probably — involved, and ions comprising such combinations possibly differ from one region to another." If a deficit or surplus of chemical elements is involved in limiting the distribution (particularly the southern distribution) of the pheasant in eastern North America, such a mineral imbalance is not exclusively peculiar to any of the geologic glacial drifts, or to unglaciated areas.

## SUMMARY

The relative abundance of pheasants per 100 miles of driving in the 74 northernmost counties of Illinois, as recorded by rural mail carriers during April censuses, was 7.6 in 1958, 9.9 in 1963, 5.5 in 1968, and 4.9 in 1973. Illinois's pheasant abundance, therefore, declined about 11 percent between 1968 and 1973. The population level of pheasants in 1973 was about half of the state's all-time high in pheasant abundance, recorded in 1963.

Although Illinois's pheasant population diminished sharply in overall abundance during the late 1960's and early 1970's, the decline has not affected all sectors of the occupied range equally. Geographically, the intensively farmed east-central sector of Illinois, which has harbored the nucleus of the state's pheasant abundance for 40 years, suffered the greatest loss in abundance between 1963 and 1973; this sector, however, still contains thriving populations of pheasants, and remains the most stable center of abundance in the state. Pheasant populations in northern Illinois, which fared poorly during the 1950's and 1960's, registered modest gains in abundance in the early 1970's. The most notable gains in abundance within the past 15 years have occurred in south-central Illinois. This south-central sector contained the only six counties in Illinois to post consecutive gains for each 5-year

interval from 1958 through 1973, the overall gains ranging from 3- to 28-fold for the 15 years. Among the 10 top-ranked pheasant counties in the state, with respect to relative abundance, east-central Illinois contained five — Ford, Livingston, Iroquois, Champaign, and McLean, and south-central Illinois contained five — Logan, Moultrie, De Witt, Macon, and Piatt.

In 1963, the Illinois pheasant range was characterized by localized "hot spots" in pheasant abundance. These "hot spots" were no longer the trademark of the range in 1973. To illustrate, among the 1,612 townships in Illinois, there were 61 "hot spot" townships in 1963, but only 1 in 1973; these "hot spot" townships yielded 53 percent of all pheasants observed in the 1963 census, but only 1 percent of those observed in the 1973 census. Thus, in final analysis, after exclusion of the "hot spot" townships, the abundance of pheasants throughout most of the state's occupied range was about the same in 1973 as in 1963.

Although the southern apron of the occupied pheasant range in Illinois currently contains its highest abundance of pheasants, there has been no permanent southward penetration of the bird into new range during the past 15 years. Interesting, however, is the fact that the recent surge in pheasant abundance in south-central Illinois has occurred largely on old Illinoian glacial drift, and not on the more recent Wisconsinan drift with which pheasants have been associated principally since being introduced into the state.

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