

PRESIDENTIAL ADDRESS

THE DISTRIBUTION OF INDIANA'S BIRDS AND BIRDWATCHERS

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Ladies and gentlemen, I will assume that all of you here are professional scientists. If there are a few among you who are not professionals, but interested amateurs in science, wait a minute before you become annoyed. The subject of the role of the amateur in science is not currently popular, and indeed the conditions of modern life and the style of most present-day science militate against the dilettante or hobbyist.

In the nineteenth century it was not so; at least three of the greatest thinkers in the science of biology of that time were a clergyman, Thomas Malthus, a country gentleman of leisure, Charles Darwin, and a priest, Gregor Mendel! Specifically in the field of ornithology, most of the famous names of the nineteenth century were those of amateurs—Charles Lucien Bonaparte, Elliott Coues, Osbert Salvin, Percy L. Selater, and so on. I'm not sure whether to call John James Audubon an artist, an author, a storekeeper, or a hunter, but he certainly was *not* a professional scientist. In Indiana there has been published only one complete book treating scientifically the birds of the state. It came out in 1899, and its author, Amos Butler, was one of the founders of the Indiana Academy of Science(2). But so far as making a living was concerned (except for one year), Butler was a farmer and later an administrator of state social services.

Even today, the incidence of amateurs in ornithology contrasts sharply with that in most other branches of science. Amateurs just don't seem to be drawn into organic chemistry or systems ecology, for instance. I have trouble naming any full-time professional ornithologists in Indiana today. However, three or four game managers hired by the state and federal governments are working full-time on birds, and Russell Mumford and Harmon Weeks at Purdue must spend more time on birds than they do on mammals. Several others, including myself, might be called "semi-pros"; we are professional biologists who spend part of our time on birds. But there are many very competent and dedicated students of birds in Indiana who spend all their spare time watching and studying birds for absolutely no rewards of money or status. They are representative of thousands of bird watchers in the other 49 states and throughout the world.

This powerful force of amateurs produces a great volume of bird data. For instance, 31,000 bird watchers, over 600 of them in Indiana, contributed a full day's rugged work last December to this volume(6) detailing the geographic distribution of North American birds at a certain time and place. With a little professional help in planning and

analysis, vast, and yet intricate, scientific projects can be carried out by this enthusiastic army. (See the fine essay by Mayfield(3), for further explication.)

Two years ago the Indiana Audubon Society appointed a committee to gather data on the nesting birds of the state and analyze it. Charles Wise, the other member of the committee, helped me with the planning but I, alone, am responsible for any errors in compilation and analysis. While I am thanking people, let me acknowledge the help of Russell Mumford, James Cope, and Theodore Crovello at various points in this work. I will use this project as a small example of the role of the amateur in ornithology.

The geographic distribution of birdwatchers, or at least of the 800 members of the Indiana Audubon Society, is shown in figure 1, with the largest dots showing counties with the largest membership and smaller dots showing fewer members. Notice that there are 24 counties with no members and that membership is concentrated in a few counties—mostly near the center of the state.

Our appeal for nesting bird records has resulted in a pile of data, which I will summarize briefly. I have received lists from 39 people, covering 43 counties. In addition, I have a list of nesting birds from 10 counties that I have seen myself, and Russell Mumford let me use his file of 131 nesting bird species that he has seen nesting in a total of 59 counties of Indiana. Also, I have studied the literature on the birds of Indiana over the last 51 years, most of it published in the *Indiana Audubon Quarterly*. Unfortunately, there are 92 counties in Indiana, and we still lack a single nesting record in the last 51 years of *any* species, for six counties—White, Vermillion, Rush, Dearborn, Ohio, and Floyd. Another 22 counties (mostly those where the Indiana Audubon Society has no members) are represented on our list by only one to five species each. At the other extreme, one observer, Alan Bruner, has seen the nests or small young of 95 species in Montgomery County.

We have, then, records of 173 species of birds nesting in Indiana in the last 51 years. A convenient comparison over *time* is with the list published by Butler in 1899. The present list lacks 23 species stated by Butler to nest in the state, which I divide this way:

3 species are extinct—The Passenger Pigeon, the Carolina Parakeet, and the Ivory-billed Woodpecker.

14 species have been extirpated as nesting birds in the state—

Common Loon†	Peregrine Falcon
Horned Grebe	Common Snipe†
Trumpeter Swan	Lesser Yellow-legs
American Wigeon	Solitary Sandpiper
Swallow-tailed Kite	Least Tern†
Mississippi Kite	Raven
Bald Eagle	Brown Creeper†

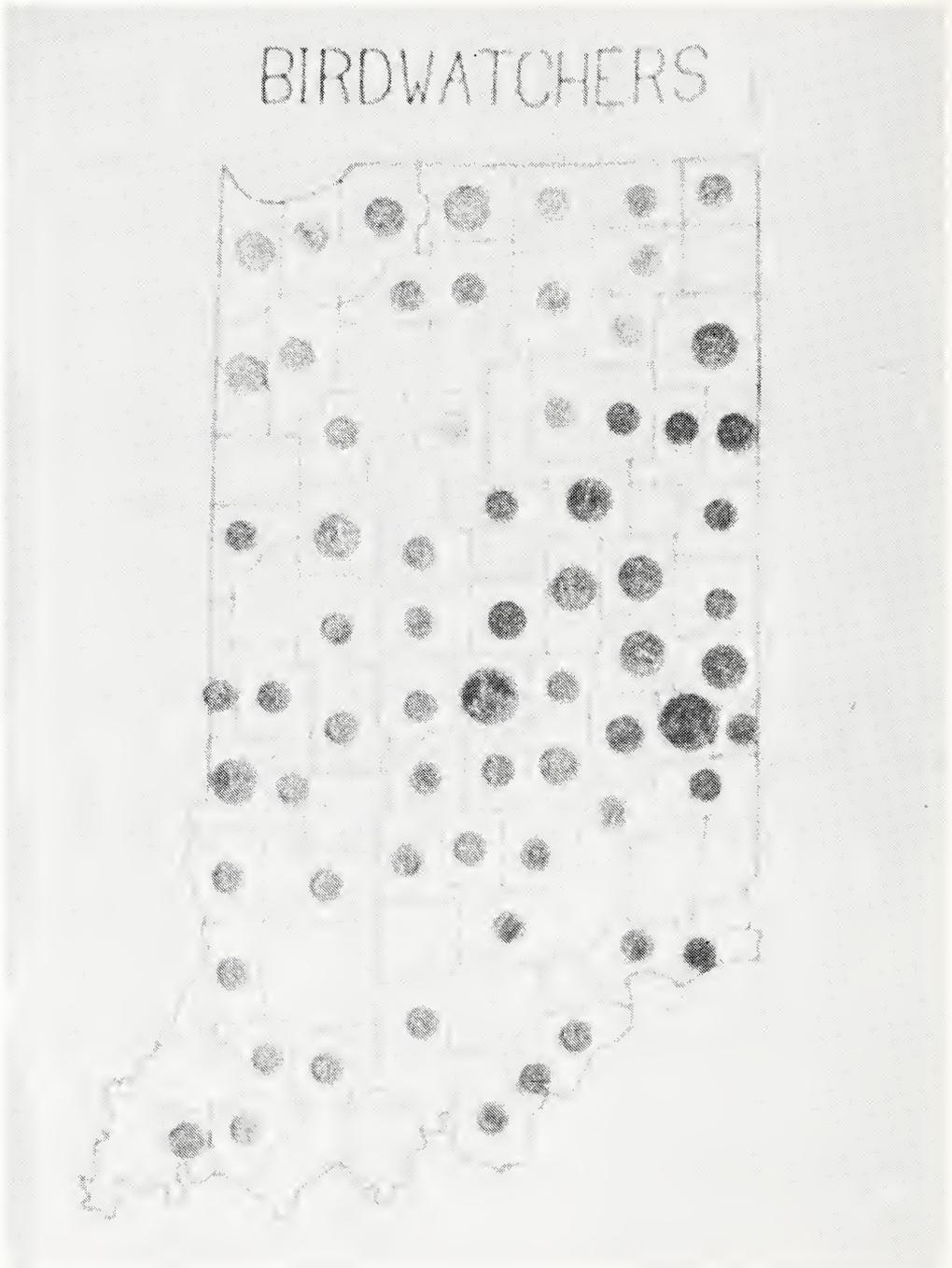


FIGURE 1. *Geographical distribution of the members of the Indiana Audubon Society. Dot size is proportional to number of members.*

(Of these, the four marked by daggers [†] still occur in small numbers in summer; perhaps more intensive work will show that they still do nest in the state.)

5 species were apparently recorded as nesting by Butler in error—

Snowy Egret

Nashville Warbler

Bonaparte Gull

Northern Waterthrush

Swainson's Warbler

One species nesting in the nineteenth century probably still does so, but there don't seem to be any definite records in the last 51 years. This is the Black Rail.

On the other hand, 14 species in this modern list were not included by Butler as nesting. Of these, 6 species he failed to list at all—

Mute Swan	Starling
Ring-necked Pheasant	Western Meadowlark
Scissor-tailed Flycatcher	Brewer's Blackbird

Eight more species were stated by Butler not to nest, but each has done so at least once in recent years—

Gadwall	Canada Warbler
Pintail	Blue Grosbeak
Green-winged Teal	Red Crossbill
Ruddy Duck	Pine Siskin

As to *geographic* distribution in the state, I recognize seven patterns; (1) Uniform. (2) Only north. (3) Only south, or south central. (4) Only west. (5) Only northwest; a variation is all of the state except the southeast. (6) Only in extensive marshes; widely scattered. (7) Irregular, scattered pattern I can't explain. The species in patterns 2, 3, 4, and 5 are those whose geographic boundaries intersect those of Indiana; that is, the edge of the breeding range of each species, when drawn on a map of North America, passes across Indiana. Let me give details:

(1) Rather uniform distribution is found in half, or 87 species. I divided the state into 12 equal-sized areas, and 67 of these species (such as the Cardinal, figure 2) nest in all 12 areas. The other 20 species (marked with a dagger on the list below) have been found nesting in 10 or 11 of the areas; and the 1 or 2 omitted ones are erratic and non-contiguous; I assume that our data are inadequate and that these species, also, are uniform.

Group 1	Group 2
Great Blue Heron†	Nighthawk†
Green Heron	Whip-poor-will†
Mallard†	Ruby-throated Hummingbird
Wood Duck	Chimney Swift
Turkey Vulture	Belted Kingfisher
Red-shouldered Hawk†	Common Flicker
Red-tailed Hawk	Red-bellied Woodpecker
Bob-white	Red-headed Woodpecker
American Kestrel	Hairy Woodpecker
Kildeer	Downy Woodpecker
Woodcock	Eastern Kingbird
Rock Dove†	Great Crested Flycatcher
Mourning Dove	Acadian Flycatcher
Black-billed Cuckoo	Willow Flycatcher
Yellow-billed Cuckoo	Eastern Phoebe
Screech Owl	Eastern Wood Pewee
Great Horned Owl	Horned Lark†
Barred Owl†	Bank Swallow†

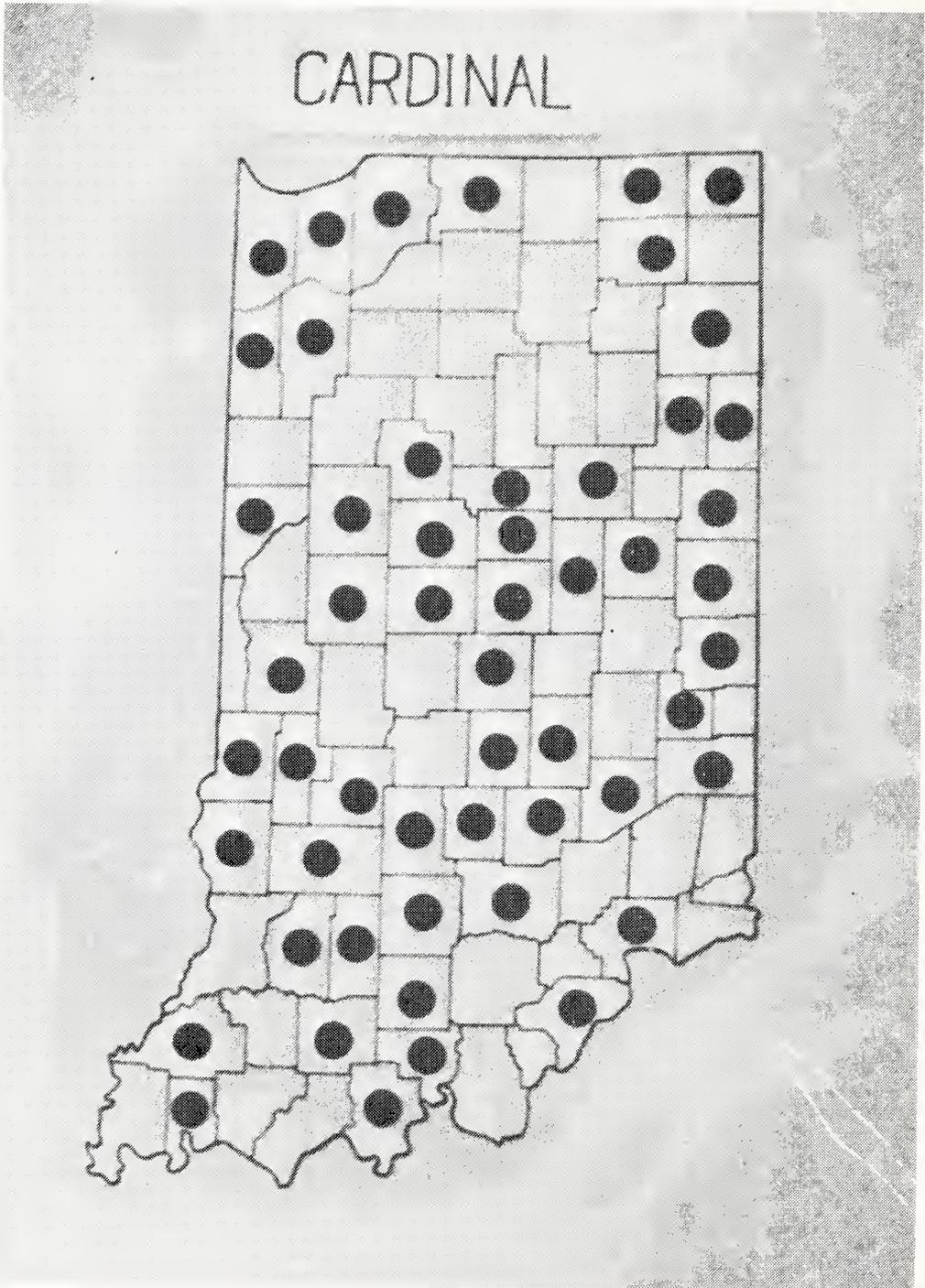


FIGURE 2. Nesting distribution of the Cardinal in Indiana as shown by nest records, 1929-1979.

Group 3

Barn Swallow
 Rough-winged Swallow
 Purple Martin
 Blue Jay†
 Common Crow†
 Tufted Titmouse

White-breasted Nuthatch
 House Wren
 Bewick's Wren†
 Carolina Wren†
 Mockingbird
 Gray Catbird

Group 3 (continued)	American Redstart
Brown Thrasher	House Sparrow†
Robin	Eastern Meadowlark
Wood Thrush	Red-winged Blackbird
Eastern Bluebird	Orchard Oriole†
Gnatcatcher	Northern Oriole†
Cedar Waxwing	Common Grackle
White-eyed Vireo	Brown-headed Cowbird
Yellow-throated Vireo	Scarlet Tanager
Red-eyed Vireo	Cardinal
Warbling Vireo	Indigo Bunting
Prothonotary Warbler†	Dickcissel
Blue-winged Warbler†	American Goldfinch
Yellow Warbler	Rufous-sided Towhee
Group 4	Grasshopper Sparrow
Cerulean Warbler	Henslow's Sparrow
Ovenbird	Vesper Sparrow
Hooded Warbler†	Chipping Sparrow
Louisiana Waterthrush†	Field Sparrow
Common Yellowthroat	Song Sparrow
Yellow-breasted Chat	

(2) A northern distribution occurs in 22 species. Some are confined to the northern row of counties; others extend south to Marion, or even to Jackson County. The Chestnut-sided Warbler is an example; its distribution is shown in figure 3.

Gadwall	Black-capped Chickadee
Green-winged Teal	Long-billed Marsh Wren
Pintail	Short-billed Marsh Wren
Marsh Hawk	Veery
Ring-necked Pheasant	Chestnut-sided Warbler
Sandhill Crane	Canada Warbler
Black Tern	Bobolink
Short-eared Owl	Western Meadowlark
Yellow-bellied Sapsucker	Pine Siskin
Alder Flycatcher	Red Crossbill
Cliff Swallow*	Swamp Sparrow

An additional four species are more or less evenly distributed in the northeast three-fourths of the state, but don't nest in the southwest quadrant.

Spotted Sandpiper*	Rose-breasted Grosbeak
Least Flycatcher	Savannah Sparrow

(3) Fourteen species nest only in the southern part of the state, although their northern boundaries vary. A good example is the Black Vulture; its distribution is shown in figure 4. Three of these species are more or less confined to the south-central uplands. The distribution of the Pine Warbler, shown in figure 5, illustrates this pattern.

CHESTNUT-SIDED
WARBLER

FIGURE 3. Nesting distribution of the Chestnut-sided Warbler in Indiana. Nest records, 1929-1979, are indicated by large dots, and records of territorial adults in the month of June by small dots.

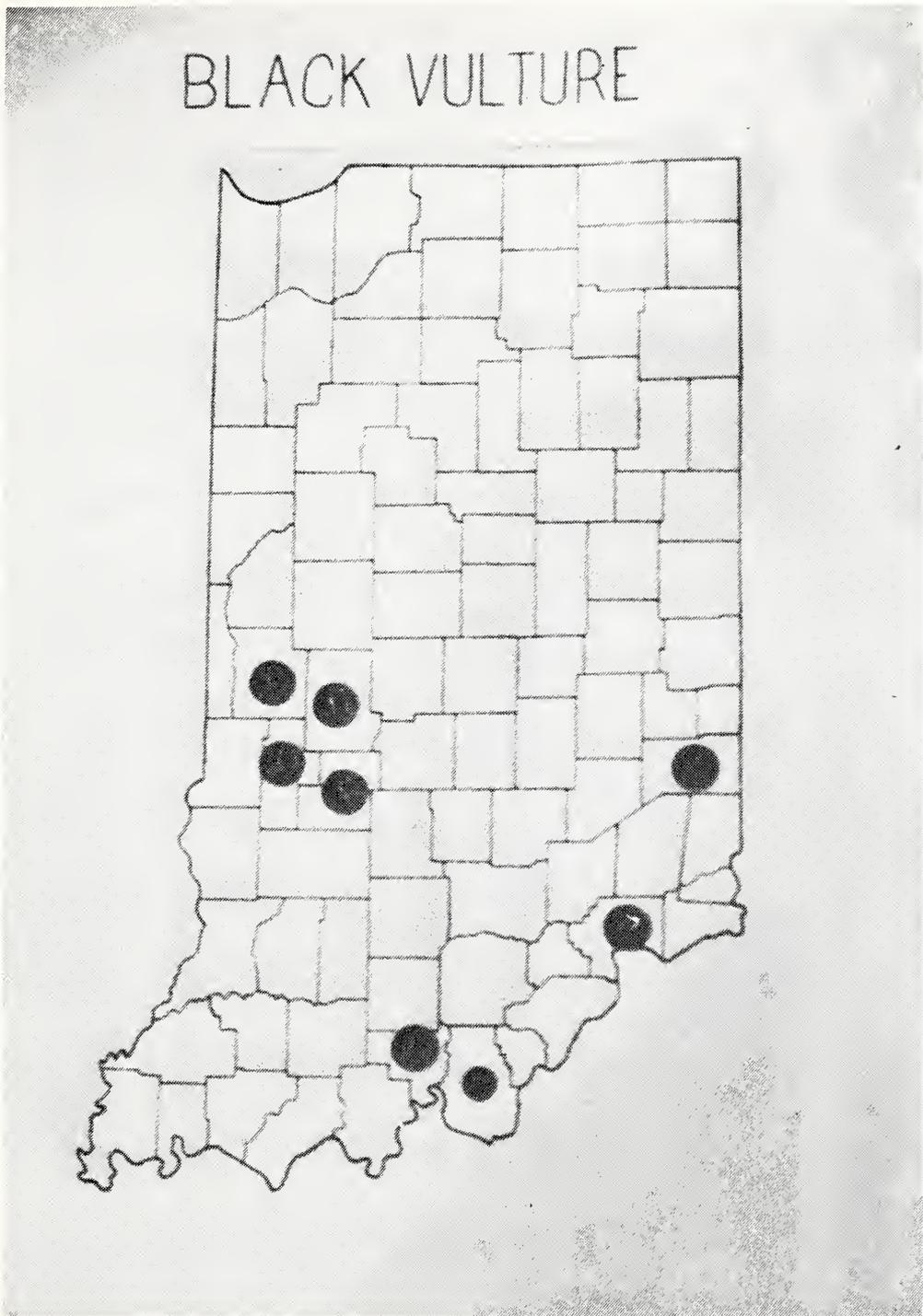


FIGURE 4. *Nesting distribution of the Black Vulture in Indiana; symbols as in Fig. 3.*

PINE WARBLER



FIGURE 5. Nesting distribution of the Pine Warbler in Indiana; symbols as in Fig. 3.

Yellow-crowned Night Heron	Worm-eating Warbler (S central)
Black Vulture	Yellow-throated Warbler
Wild Turkey (S central)	Pine Warbler (S central)*
Chuck-will's-widow	Kentucky Warbler
Pileated Woodpecker*	Summer Tanager
Carolina Chickadee	Blue Grosbeak
Black and White Warbler*	Bachman's Sparrow

(4) Five species nest only in the western part of the state. The distribution of the Bell's Vireo is shown in figure 6; notice that there is a June record from as far east as Madison County and a nest as far east as Marion County.

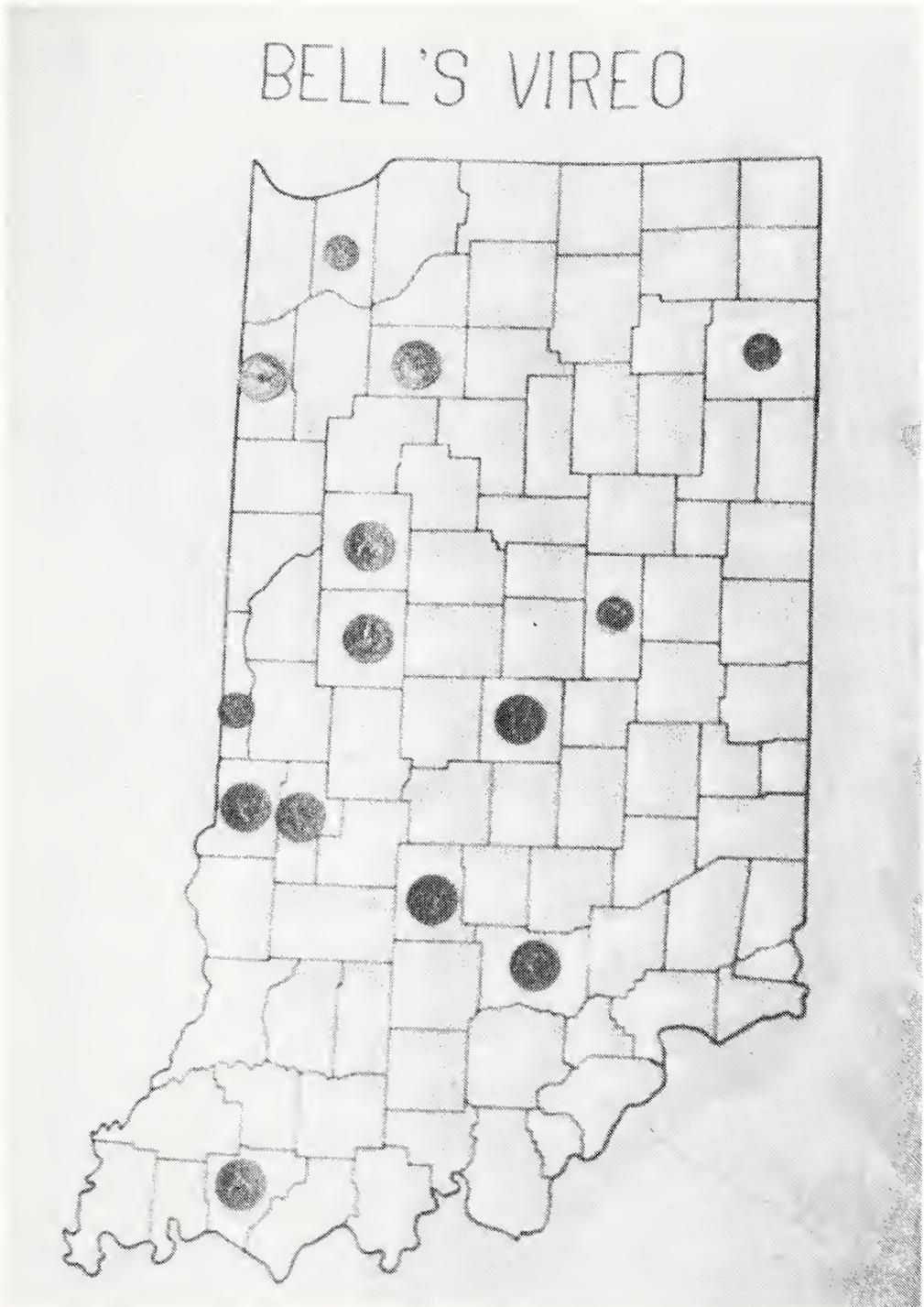


FIGURE 6. Nesting distribution of the Bell's Vireo in Indiana; symbols as in Fig. 3.

Double-crested Cormorant
 Scissor-tailed Flycatcher
 Red-breasted Nuthatch*

Bell's Vireo
 Golden-winged Warbler*

(5) Fourteen species have a northwestern distribution. Twelve of these are distinctly confined to the northwest. The Indiana nesting distribution of the Ring-necked Duck is shown in figure 7.



FIGURE 7. Nesting distribution of the Ring-necked Duck in Indiana; symbols as in Fig. 2.

(6) Eleven species nest only in marshes, and their distribution is as widely scattered as these ecological features. An example is the Coot, whose nesting distribution is shown in figure 9.

Pied-billed Grebe
Least Bittern
American Bittern

King Rail
Virginia Rail
Sora Rail



FIGURE 9. Nesting distribution of the American Coot in Indiana; symbols as in Fig. 3.

Canada Goose	American Coot
Black Duck	Common Gallinule
Blue-winged Teal	

(7) Sixteen species have a scattered distribution pattern (not in marshes) which is probably meaningless geographically and simply reflects our lack of nest finding.

Black-crowned Night Heron	Barn Owl
Mute Swan	Long-eared Owl
Hooded Merganser	Saw-whet Owl
Sharp-shinned Hawk	Loggerhead Shrike
Cooper's Hawk	Starling
Broad-winged Hawk	Parula Warbler
Osprey	Prairie Warbler
Ruffed Grouse	Lark Sparrow

In conclusion, I can only emphasize that the data are better than we have had before, but still sadly inadequate. The records have been entered on the Academy's Biological Survey Committee computer cards, and can easily be augmented. Let's find a lot more nests!

Addendum: The geographical distribution of Indiana's avifauna was briefly discussed by Butler(2) and Webster(7). A thorough and modern discussion of bird distribution in the adjacent state of Kentucky(4) was useful to me, as was the standard reference work on North American bird distribution(1) and the recent check-list of Indiana birds by Mumford and Keller(5). In the geographic lists of species above, an asterisk(*) indicates that the distribution as presently known in Indiana does not jibe with the general nesting distribution of the species as found in adjacent states. Whether the discrepancies are caused by my lack of knowledge for Indiana or by local ecological factors, I do not know. Scientific names of birds may be found in (1).

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