NOTES AND NEWS

The Condor for September will contain the membership roster. Members are urged to send in recent address changes and zone numbers to John McB. Robertson or to the editorial office so that the roster may be as accurate as possible.

The printing of the leading article in this issue of the Condor was made possible through a cooperative financing arrangement with the Missouri Conservation Commission. This extensive and valuable report on wild turkeys is thus made available to all Club members.

PUBLICATIONS REVIEWED

Within the past forty years, the quantitative study of bird populations has become an important and promising field of research. While the results have provided data of but a few general types, great variation in details of methods has led to complications obvious to anyone attempting to compare any of the available data, and for some years a general evaluation of methods has been needed. A recent paper by S. C. Kendeigh (Measurement of bird populations, Ecol. Mono., 14, 1944:67-106) provides a substantial contribution toward this end.

Following an account of the historical development of the study of bird populations, Kendeigh defines two main points of view manifest in attempts to determine and analyze abundance of birds: In the first, an index is obtained, yielding a measure of relative abundance only; in the second, actual numbers of birds per unit area are obtained, yielding a measure of absolute abundance. As basis for his analysis of methods, Kendeigh combines a survey of the extensive literature with original data, representing several different techniques of population analysis, from his studies of birds in Ohio, Illinois, New York, and Tennessee. There is a bibliography of 241 titles.

In analyses of relative abundance, one of the most generally used measures is the frequency index. Kendeigh points out that apart from the fact that such indices do not indicate true numerical status, they are subject to corrections for differences in conspicuousness of various species, for differences in behavior, and for varying amounts of time spent by the observer in different habitats. He does not mention the fact that in some studies of relative abundance indices have been prepared without regard for seasonal status; thus, the weight of records over a limited portion of a year is spread over an entire year, leading to an erroneous placement of the species. The author would have been justified in criticizing frequency indices more emphatically from the standpoint of variation in results due to differences in time spent in different habitats by the investigator. Such indices as are obtained seem to me to be only slightly better than the usual subjective evaluations as "abundant" or "uncommon." Moreover, attempts to compare indices without the corrections mentioned above lead only to a mere toying with figures.

Other measures of relative abundance described by Kendeigh are based on numbers of birds per unit of time or unit of linear distance. Here again there is need for determining suitable units and for computing certain corrections. Investigators using this method have calculated "coefficients of conspicuousness," of "song persistence," and of "song intensity." These coefficients must of course be based on calculations using actual numbers of birds per unit area; that is, the studies of relative abundance must be preceded by determinations of absolute abundance on plots representative of the habitats to be sampled. "To the extent that these corrections are made, the more reliable the data become, but if all corrections are made as much time and energy will be involved as in the determination of absolute abundance . . ." (p. 71).

Kendeigh presents and discusses fully frequency indices based on field lists accumulated by numerous observers near Cleveland, Ohio. The significant part of this discussion is a comparison of two sets of figures from different parts of Ohio (p. 74) treated in the same manner, one set yielding indices over four times greater than the other. "There is no reason to believe that birds are over four times more abundant in Zanesville than in Cleveland, as the figures indicate"! Measures of relative abundance must appear futile when such discrepancies are obtained, no matter what factors may explain them. At the close of his discussion of relative abundance, Kendeigh states (p. 78): "It appears that ornithology must start almost, but not quite, anew and gather exact quantitative data on the abundance of birds by development of improved census methods [based on actual numbers]." Considering the quantity of ornithological literature dealing with measures of relative abundance, this is indeed a significant conclusion. In many instances, measurements of relative abundance have seemed adequate for the purposes of the investigator, who probably did not concern himself with the usefulness of his data to others. Certain types of data, as for instance the figures available in the Christmas Bird Counts of Audubon Magazine, can be used safely only by methods yielding measures of relative abundance. Thus, under certain circumstances, such methods may be employed with good reason,