

SUMMARIZING REMARKS: ESTIMATING RELATIVE ABUNDANCE (PART I)

RALPH W. SCHREIBER¹

Perhaps C. J. Ralph and Mike Scott invited me to summarize this session to obtain a "pelican's eye view" of studies of little brown birds, or perhaps, since I am a curator in a major natural history museum so I could provide a place to put all the specimens that you are censusing, and thus provide a true count of the population. In any case, the following is the ornithologist's view to complement the statistical summary view of Doug Johnson.

I believe that the analyses of the data presented by the speakers in this session are in good hands. These methods will be continually worked over and refined by researchers, and especially those who are interested in fiddling with computers, correlations, and fudge factors. If I can find a common thread in these papers, it is that there is a need to influence the field observers in the Christmas Bird Counts, who are frequently "amateurs," to somehow make the data collection more "scientific." I wish to make three observations from listening to the paper presentations and then provide a suggestion for future work.

(1) The CBCs and Breeding Bird Surveys (BBS) provide an invaluable index to population changes but probably only within an order of magnitude and only if large geographic areas are analyzed together. I believe that species composition and relative abundance may prove to be the most useful, derivable index from these data. Further, it is obvious that only through analysis of 10 or more years of data will accurate determination of avian population trends be possible. Probably a decade is a minimum and 20 to 30 years are required for anything approaching reality. This fact needs to be emphasized to funding agencies and government bodies attempting to use the data for management recommendations.

(2) I believe that obtaining more data relevant to the non-breeding season and/or non-breeding biology of birds is absolutely critical. We know a great deal about breeding in birds but "nothing" about the remainder of the year. The few studies that are available and the inferences that can be made about total biology of species clear-

ly indicate that any and all data we can collect about the time birds spend away from the nest will be extremely valuable.

(3) It has been my observation that most observers participating in CBCs are primarily emphasizing "ticking" another species on the list. They tend to ignore numbers, especially for common-abundant birds, and totally ignore age and sex data when they are available. The need to make the CBCs more scientifically-biologically useful is obvious and one step would be for more instructions to be given to the organizers and more emphasis to be placed on counting, sexing, and aging the birds observed.

Dr. Callahan has asked us to provide suggestions for activities that need to be done. Thus, I make the following suggestions:

We need to apply some of the techniques and methodology of the BBS and those presented by our Finnish and New Zealand colleagues to the CBCs. One obvious factor would be to provide a detailed habitat map of the count circle so that actual habitats can be accurately determined. This would greatly assist in analysis of bird populations relevant to the habitats in which they are found.

I believe that we should not give up on the observers in the CBCs. They are intelligent people interested in birds and a proper training program would be extremely useful and effective. In contrast to the beliefs of Drs. Hickey (1981) and Bock and Root (1981), I believe that we can and must do something to improve the data collected. We need an effort to balance the fun of the CBCs with the great need to make the data more relevant for bird population studies. Ornithologists may need to spend more time with the "amateurs" to educate and cajole more reliable data from them. The conservation policy making possibilities may be a valuable tool in this regard.

We need to view the bird watchers, listers, and participants in CBCs and BBSs as an untapped resource. It may seem like an enormous job but if one researcher-scientist can influence one or two CBC compilers or one field worker in a count circle, or one birder who consistently visits a region, we could have a valuable effect on the census data. The better the field data the more accurately the analysis will reflect the actual avian populations.

¹ Natural History Museum, Los Angeles County, 900 Exposition Blvd., Los Angeles, California 90007.