

APPENDIX III

REPORT OF WORKING GROUP¹ ON THE NEED FOR STANDARDIZED CENSUS METHODS

HARRY F. RECHER²

In an era of rapidly expanding human populations and the global impact of technology, the need to monitor bird populations worldwide must be accepted as critical. It is therefore essential that regional surveys use similar procedures, and that the storage of data be coordinated so that each set of surveys can be compared. Without standardization, trends in the abundance of birds, reflecting continental or global changes in environment, cannot be identified.

AMATEUR INVOLVEMENT

Two kinds of people count birds; professionals and amateurs. Distinguishing them is often difficult, but it is probably fair to say that professionals are paid for their effort and have specific research goals. The amateur is unpaid and views counting birds as a recreation. Nonetheless amateurs will find their activities more meaningful if they are part of a wide research effort with well-defined objectives. The amateur represents a pool of labor which enables work to be done on a scale that would otherwise not be possible; it is important to encourage their participation in research.

In America and Europe, amateurs already take part in regional surveys of birds and there are plans for a national bird survey in Australia. Although broadly similar in their intent, there are significant differences between the various regional surveys. For example, the Australians propose only to list the species of birds observed (Cullen 1980) while the American Breeding Bird Survey tallies individuals. With differences as great as this, it is impossible to compare results.

COMPARISON OF METHODS

Procedures do not need to be identical and professionals will continue to use a wide variety of techniques. The requirements of individual research projects effectively prevent adherence to a single set of rules. Some standardization could probably be achieved by the presentation of established procedures in a manual, but the

critical need is to coordinate regional censuses that rely on amateurs to do individual counts.

Several methods are already used in regional surveys and have proven effective. Territory or spot mapping (e.g., Kendeigh 1944, Anon. 1970) is used in the British Common Bird Census (Williamson and Homes 1964). Fixed-distance transect counts are used in Finland (Järvinen and Väisänen 1977c), while the American Breeding Bird Survey is based on unlimited-distance station or point counts (Bystrak 1981).

Standard procedures for territory mapping and point counts are particularly desirable. In many ways, these two methods are complementary. The mapping method provides reasonably precise measures of breeding bird numbers, but is time consuming, labor intensive, and most useful for detailed and local studies. Adequate guidelines exist (Anon. 1970, Robbins 1970).

Point counts are suitable for the estimation of relative abundances and over broad areas. As illustrated by the Breeding Bird Survey, it is an effective way to use amateurs whose time is otherwise too limited to participate in censuses using the mapping method. Fixed-distance line transects are perhaps preferable if density estimates are required, but are not as efficient in the use of amateurs as point counts. In any event, using trained observers, unlimited-distance point counts can be converted to variable-distance censuses to give density figures. There are no recognized standard procedures for either the line transect or point count methods. We decided that unlimited-distance point counts were simplest to organize and would be easier to adapt to international requirements, than the line transect method. This does not preclude the possibility of another set of standards being developed for the line transect method.

GUIDELINES FOR POINT COUNTS

As with all survey methods, the unlimited-distance point count method is biased towards particular birds or groups of birds. It is also influenced by the age, sex or reproductive state of each bird, the season, habitat, time of day, weather, environmental noise, the observer and the number of birds being recorded. This emphasizes the need for guidelines. However, guidelines need to be flexible and allow for local differences in the avifauna, climate, and people.

¹ Working Group members: D. G. Dawson, J. T. Emlen, W. F. Oelklaus, S. E. Svensson and S. A. Temple.

² Department of Vertebrate Ecology, The Australian Museum, P.O. Box A285, Sydney South, NSW 2000, Australia.

Allowing for such differences, the Committee suggests the following procedures for the fixed-distance point count method:

- A survey by the point count method should use a number of different areas or routes, done by foot or vehicle, along which the observer stops periodically and records birds seen or heard.

- All birds seen or heard are recorded regardless of their distance from the observer (with well-trained observers the distance can be recorded, allowing the calculation of density).

- Each count is done by a single observer.

- The area or route should be surveyed over a number of years by the same observer using approximately the same points.

- If different observers are used, the survey should be presented as if it was a different area or route.

- The time of day each area is surveyed should be the same for each count; different areas or routes can be surveyed at different times.

- The season when a count is conducted can be determined by climatic or environmental conditions.

- The recommended minimum number of points or stations on a survey area or route is twenty.

- The distance between stops can vary, but excessive overlap between stations should be avoided. One hundred meters is a suggested minimum distance between points.

- Five minutes should be spent at each point.

- Care must be taken to avoid counting the same bird(s) twice. A simple map on which the position of birds are noted as they are recorded helps to avoid repeat counts.

- Time of day, weather and environmental noise (e.g., aircraft, cicadas, running water) are recorded at each stop. Counts should be done under good weather conditions.

- A simple description of the habitat should be made for each point and abundant resources (e.g., nectar, grain) noted.

- Data should be recorded in a format suitable for computer coding.

The procedures suggested are a compromise. The members of the Committee had differing opinions on the need for a minimum number of stops (from no minimum to 50), the time spent at each stop (from 3 to 10 minutes), and on the need to describe the habitat at each station (from no need and a waste of time, to being an absolute necessity). Twenty was chosen as the minimum number of stations, as it was considered to be an adequate sample size, made efficient use of the time of a person wishing to spend a morning in the field, but was not so numerous as to be tiring. Five minutes was considered long enough to record the birds at a station without being hurried (as if only three minutes were available), but not so long as to cause undue problems with repeat counts. The suggested minimum distance (100 m) between points is based on experience in New Zealand (Dawson and Bull 1975), but needs to be tested in each region. The Committee unanimously agreed on the need to restrict the number of observers to one and to hold environmental conditions (e.g., time of day) as constant as possible for each count.

CONCLUSIONS

Clearly the guidelines will need refinement and should be presented for discussion at scientific meetings. Ultimately the procedures agreed upon will need to be endorsed by a recognized international body. It is considered that the International Ornithological Congress (Moscow 1982) is an appropriate venue for the presentation of recommendations with the view of their adoption as an international standard.