

Breeding Bird Censuses and Winter Bird-Population Studies: an update

Gregory S. Butcher

AS ANNOUNCED IN *AMERICAN BIRDS* (1984, Vol. #38, p. 34), the results of Breeding Bird Censuses (BBCs) and Winter Bird-Population Studies (WB-PSs) are no longer published in *American Birds*; instead, they are computerized at the Cornell Laboratory of Ornithology. This new arrangement makes the results of the studies available to researchers in a much more usable form than before. This change in management of the data has led to a number of related changes in the procedures of submitting, acquiring, and citing the results of the studies. This note describes the new procedures, discusses the value of the studies, and explains the value of computerizing them.

Methods

A BBC and WB-PS both involve repeated visits to the same study plot to record the identity and number of birds present. In addition, both involve recording information about the habitat(s) on the plot. Preferably, plots should be 25 to 150 acres (10 to 60 hectares) in size (Engstrom and James 1981; IBBC 1970), with uniform vegetation. Each visit to a plot should take between three and five minutes per acre (Engstrom and James 1981, 1984; Robbins 1972); most visits should be in the morning. At least eight visits are required for these studies (Robbins 1981, IBBC 1970). Breeding Bird Censuses are done during the breeding season; Winter Bird-Population Studies during the period of winter residency for the local birds.

Participation

There are several good reasons to participate in one of these studies. First, they are fun. By repeatedly returning to the same plot of land, participants learn details about birds and their behavior that they could not learn any other way. For example, during BBCs, most participants

find numerous nests and observe courtship, incubation, and feeding behaviors. Winter Bird-Population Studies provide motivation for outdoor study during a time when most people need an impetus to spend time afield. Collecting habitat information about the plots provides a new dimension for many birders by revealing the winter and summer habitat requirements of local birds.

In addition to being fun, the censuses also provide ecologically important information. They yield accurate and inclusive lists of all resident bird species on a plot during the breeding season or during the winter. Monitoring bird populations helps to monitor the ecological health of the study plot. Monitoring birds during the breeding season and the wintering season is preferred because birds are more stationary during these two seasons than at other times, and population estimates may be more consistent over time. A single year's study can determine whether all species expected in a particular habitat are present; an ongoing study can determine whether those species are maintaining healthy populations over time.

Contributing the results of a BBC or WB-PS to the computerized database at the Cornell Laboratory of Ornithology increases the value of the study because the results are then readily available for comparison with the results of other studies. Comparing the results of a large number of studies in a variety of habitats will increase our knowledge of the habitat requirements of North American birds and improve our ability to provide adequate habitat for birds in the years to come.

Many researchers have made use of BBCs to determine the habitat requirements of birds. The most extensive study used BBC and other supporting data to demonstrate that long-distance migrants were disappearing as breeding species from a number of small woodlots in the Washington/Baltimore area, while re-

maining as breeders in the area's largest woodlots (Whitcomb *et al.* 1981, Whitcomb 1977, McClintock *et al.* 1977). As a result of these studies, Whitcomb *et al.* (1976) recommended that forest preserves in the eastern United States be made as large as possible in order to maintain populations of long-distance migrants. In support of this conclusion, a study of seven BBCs over a 24-year period on a single plot in Connecticut showed that forest destruction adjacent to the study plot caused a significant decline of long-distance migrants on the plot (Butcher *et al.* 1981).

Breeding Bird Census data have also been used to demonstrate the importance to birds of habitat characteristics other than habitat size, such as the number of tree species and the height of the trees (James and Warner 1982); the amount of vegetation on the ground, in the shrub layer, and in the canopy; the size of the trees; and the percentage of coniferous, oak, and dead trees (Robbins 1978).

Many similar studies use BBC data, and WB-PS data are potentially as valuable.

Computerized results

Until a few years ago, all BBCs and WB-PS were compiled and analyzed by hand. Because this process is slow and tedious, the valuable data contained in the studies have been under-used. Using computerized data makes data retrieval rapid and efficient and allows data to be compiled in new and useful ways. First, all the data about a single species can be retrieved as a group. For example, someone interested in Ovenbirds (*Seiurus aurocapillus*) can obtain all Ovenbird records and learn which habitats and which geographic areas support the highest densities. Second, all information about a single habitat can be grouped. Someone interested in birds of oak forests can obtain all records from oak forest study plots, including a list of birds present and

their relative densities. Third, for plots that have been censused in more than one year, all information from all years can be combined into a table to show population trends for each species on the plot.

Computerizing the studies will also make it easier for participants to submit data. For example, count compilers no longer will need to calculate the number of birds per hectare or per 100 acres, because the computer will do those calculations quickly and correctly.

How are results submitted?

Currently, count compilers should follow the previously-published instructions for submitting censuses (Kolb 1965, Van Velzen 1972). Breeding Bird Censuses should be sent to the editors, Willet and Aldeen Van Velzen (21510 45th SE, Bothell WA 98021); Winter Bird-Population Studies should be sent to Roger Boyd and Calvin Cink (Biology Department, Baker University, Baldwin City KS 66006). Results can also be sent to *American Birds*, or to the Cornell Laboratory of Ornithology. Manuscripts should be prepared according to the instructions published in previous issues of *American Birds* (Van Velzen 1972 for BBCs, and Kolb 1965 for WB-PSs). Individuals who have just completed a Winter Bird-Population Study should continue to follow the above procedures.

We are, however, currently in the process of changing this procedure to take advantage of the computer. A new data form for both studies will allow count compilers to record information more quickly and easily. The new BBC forms, with instructions, will be mailed during March 1986 to everyone who submitted a Breeding Bird Census during the past three years. The new WB-PS form will be mailed to recent participants during autumn 1986. Others may obtain a copy of the new data forms by writing Greg Butcher at the Lab of Ornithology.

How to obtain results

Copies of any of the censuses listed in the 1985 or 1986 tables in *American Birds* (1985, Vol. 39, pp. 116-121; 1986, Vol. 40, pp. 69-74) and copies of the 1937-1978 Breeding Bird Censuses can be obtained by writing to Greg Butcher at the Lab of Ornithology. The BBC data from 1937-1978 were made available to the Lab by Chandler S. Robbins, who began to computerize them in 1973.

Photocopies of the original report will

be sent to individuals who want a lot of information about a few censuses. A computer print-out containing the most relevant data will be sent to individuals who want particular bits of information from a large number of censuses. A small fee (\$0.25 per photocopied census, \$0.10 per computer-retrieved census) covers paper and postage costs. Participants in BBCs and WB-PSs are entitled to 12 free photocopied censuses, or one free computer retrieval of many censuses (for example, all censuses of a particular species or from a particular habitat or geographic area).

Many birders and researchers who expect to use the data have access to a computer. For these individuals, we can send the data on a computer tape or on IBM-PC floppy disks. Apple II floppy disks should be available soon, and other disk formats should be available for those who require them. It also will be possible for those with a modem to connect with the Cornell computer on-line; call Butcher to make arrangements. The charge for acquiring data on floppy disks, on computer tape, or on-line should be quite low; in most cases, lower than the cost of hard-copy. The exact charge will depend on the retrieval expenses.

To date, we have sent copies of 107 studies to 14 individuals. One person requested 37 different studies; another, 34. One person wanted all studies with Dickcissels (*Spiza americana*); another wanted all wetlands studies. We also have a standing order for all studies done in Florida.

BBC and WB-PS citations

Citations of BBCs and WB-PSs should use the *American Birds* issue and page number on which the table of summary information occurs. Following this citation, the words "manuscript and data stored in database management system at Cornell Laboratory of Ornithology" can be added. In correspondence with the Lab, use the sequential number of the study as published in *American Birds*.

REFERENCES CITED

BUTCHER, G.S., W.A. NIERING, W.J. BARRY, and R.H. GOODWIN. 1981. Equilibrium biogeography and the size of nature preserves: an avian case study. *Oecologia* 49: 29-37.

ENGSTROM, R.T., and F.C. JAMES. 1981. Plot size as a factor in Winter Bird-Population Studies. *Condor* 83: 34-41.

_____. 1984. An evaluation of methods used in the Breeding Bird Census. *Am. Birds* 38: 19-23.

INTERNATIONAL BIRD CENSUS COMMITTEE. 1970. Recommendations for an international standard for a mapping method in bird census work. *Aud. Field Notes* 24: 723-726.

JAMES, F.C. and N.O. WAMER. 1982. Relationships between temperate forest bird communities and vegetation structure. *Ecology* 63: 159-171.

KOLB, H. 1965. The Audubon Winter Bird-Population Study. *Aud. Field Notes* 19: 432-434.

MacCLINTOCK, L., R.F. WHITCOMB, and B.L. WHITCOMB. 1977. Island biogeography and "habitat islands" of eastern forest. II. Evidence for the value of corridors and minimization of isolation in preservation of biotic diversity. *Am. Birds* 31: 6-12.

ROBBINS, C.S. 1972. An appraisal of the Winter Bird-Population Study technique. *Am. Birds* 26: 688-692.

_____. 1978. Determining habitat requirements of nongame species. Trans. 43rd N. Am. Wildl. Natural Resources Conf. 57-68.

_____. 1981. Reappraisal of the Winter Bird-Population Study technique. in C.J. Ralph and J.M. Scott, eds., Estimating the Numbers of Terrestrial Birds. *Studies in Avian Biology* 6: 52-57.

VAN VELZEN, W.T. 1972. Breeding Bird Census instructions. *Am. Birds* 26: 927-931.

WHITCOMB, R.F. 1977. Island biogeography and "habitat islands" of eastern forest. I. Introduction. *Am. Birds* 31: 3-5.

_____, J.F. LYNCH, P.A. OPLER, and C.S. ROBBINS. 1976. Island biogeography and conservation: strategy and limitations. *Science* 193: 1030-1032.

_____, C.S. ROBBINS, J.F. LYNCH, B.L. WHITCOMB, M.K. KLIMKIEWICZ, and D. BYSTRAK. 1981. Effects of forest fragmentation on avifauna of the eastern deciduous forest. in Forest Island Dynamics in Man-dominated Landscapes, R.L. Burgess and D.M. Sharpe, eds., Springer, Berlin/Heidelberg/New York, pp. 125-205.

—Cornell Laboratory of Ornithology,
159 Sapsucker Woods Road,
Ithaca, NY 14850