

Christmas Bird Counts as Breeding Bird Censuses

by Tom Robben* and Guy Tudor**

What happens when a Christmas Bird Count is repeated during the breeding season, and what good can come out of it?

INTRODUCTION

On December 19, 1971 the Captree (Long Island) Christmas Bird Count listed 144 species, highest total in New York history. On June 3, 1972 we ran this Christmas Bird Count again, under the same rules and using the same format, and we counted 135 species. To our knowledge this is the first such Christmas Bird Count performed during the breeding season. It certainly won't be the last.

We were all surprised at how painless it was to gather valuable breeding information during an otherwise largely ignored time of year. When it was over we all agreed that it was enjoyable and even exciting! But we all know that collecting information on breeding birds and their distribution patterns is not supposed to be enjoyable or exciting to the field birder who thrives on competition, "listing", rarities, and amazing feats of identification. All of us on this June Christmas Bird Count admittedly thrive on all those things and that is precisely why we found this count to be exhilarating; because we looked at it not as a breeding census but as a "round-up" within the prescribed 15-mile circle and we tried to find as many species as we could, shooting for a big one-day list, collecting breeding proof only when absolutely necessary, and racing the clock before the warm afternoon caught up with us. There was room for some water bird enthusiasts to have contributed more systematic coverage of local nesting colonies and for breeding census types to have staked out nests of some rare breeders in advance, but we were happily surprised with the results of this preliminary effort.

For several unusual species, *e.g.*, Acadian Flycatcher, we could find no proof of breeding on the day of the count, but the mere detection of this bird prompted a search for its (possible) nest. If that nest and young, and those of other unusual species were found, we would have con-

tributed much to the ornithological knowledge of the region.

Furthermore, as the total size of our team grows in the future from 15 (in 6 parties) as it was in 1972, to 30 or 68 (in 26 parties) as it was at Christmas 1971, our estimates of the numbers of each species observed in the circle will become more accurate. Eventually we will know as much about this region in June as we do in December, and it will be covered more carefully and regularly so that year-to-year comparisons will become meaningful. We will be able to exhaustively enumerate more and more species in the circle; that is, for a growing number of species we will be able to find every single individual within the circle. Our estimates of common birds such as Am. Robin and Blue Jay will always remain only rough estimates, however, since within our 15-mile diameter circle we have an area of 176.7 square miles which simply cannot be covered inch-by-inch.

PROBLEM

The problem we attacked was how to motivate the fairly large number of good field birders to contribute to the study of local breeding patterns during that time of year which is often considered dull by most birders, especially after the passing of the excitement of the spring migration. This problem has been discussed by most ornithologists, including Joseph J. Hickey in his *A Guide to Bird-Watching* (1943), and John Bull in the following recent statement (*Proc. Linn. Soc. of N.Y.* 71:1 (1970):

"Although there is an abundance of information on the migrant birds of this region, as well as on the winter visitants, the breeding birds have been woefully neglected. There is always plenty of manpower available when it comes to the Christmas censuses, the winter

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waterfowl counts, big May days, and running down rarties throughout the year. But when the time comes for taking a breeding-bird census, searching for nests, surveying the colonial breeders, or assisting serious field workers in plotting and mapping the distribution of our less common nesting species, then the average birdwatcher lays aside his binoculars, as he feels there is nothing "exciting" until the fall migration. Nevertheless information obtained about our breeding birds, together with the field work entailed, have their rewards. For example, the data acquired on nesting habits or documentation of increases and decreases of the various species are of far greater significance than the listing of all accidental species that have ever occurred or may occur within the New York City region."

METHOD

The solution to this problem with which we are experimenting is the use of the standard Christmas Bird Count "machinery", rules, and format for a "round-up" during the breeding season. This type of count does not fit within our concept of a conventional breeding census, but conventional bird censuses have never been very popular. We have instead seized upon the popular Christmas Bird Count *objective of maximizing the number of species within a 15-mile circle* while making merely the roughest estimates of the numbers of individuals. By emphasizing the counting of the number of *species* as the primary goal, and relegating the counting of the number of individuals to a secondary position, we have made a realistic and workable compromise with the ideal of a completely exhaustive census which is virtually impossible over so large an area in the breeding season.

We all pretended this was just another Christmas Bird Count and tried to get as big a list of species as possible. We estimated the numbers of each species with varying accuracy, depending upon how "interesting" that species was to us. We covered the same circle we had covered in December with some of the same people. We overcame the problems of apathy and inertia by taking the course of least resistance: asking previous Christmas Bird participants to cover their December areas as they had then.

Each Christmas Bird Count is an institution with precedents, procedures, people, and a momentum of its own. The Christmas Bird Counts have a long-established organizational structure which can be employed as the already existing framework within which to run these breeding counts. To build up such a framework from the beginning would be a difficult requirement. Conflicts, indecision, and lethargy would plague any new choices of location, participants, leaders, compiler, objective, reporting format,

ground rules, etc. Precedent for the solution of all these problems already exists within the organizational framework that *is* the Christmas Bird Counts. No changes need be made. We must simply capitalize upon these existing assets to "manufacture" the familiar Christmas Bird Count products (survey type censuses) during the breeding season.

We strongly recommend that the National Audubon Society select one year, say 1974 or 1975, and promote on a national level the performance of Christmas Bird Counts during the breeding season. This could be conducted as a one-time large-scale experiment. It could be financed by \$1 or \$2 contributions by each observer and it might even require a special issue of *American Birds* to report the results, but the potential gain from such a national focus on the critical reproductive period of our birdlife would be enormous. Once the precedent had been set it would be easier to repeat such nation-wide studies of breeding birds every five years, or even every year.

THE IMPORTANCE OF THE RESULTS

We hope that "Christmas Bird Counts" run during the height of the breeding season will yield results many times more valuable than the results of the normal December counts. We have not proposed a bird-by-bird breeding census in order to determine breeding densities (most people would consider that too time-consuming, difficult, and dull), but rather a type of "Big Day" or "round-up" in June, where all the collective geographic and ornithological experience gained by practiced teams of birders on many years of Christmas Bird Counts over the same areas could be utilized for just one day at the peak of the breeding season.

We hope that the focusing of such combined skills on the crucial reproductive time of the year for most species will reveal to us how various birds are coping with the changes in their environments. Man's activities have triggered many of these changes and we need to know the consequences of them for our wildlife, even if it is only to anticipate the eventual effects of these changes upon us. We expect that the height of the breeding season is a better time of year to detect these effects and study their relationships than is the depths of winter when many of our breeding species are absent or present only in insignificant numbers.

Uncommon and declining nesters and those at or near the edge of their ranges should be searched for. This would keep the excitement level high and tend to concentrate our interest

on those species which are expanding their breeding ranges and those species whose declining reproductive success is of great interest; those species which may be sensitive early-warning indicators of changes in the quality of our environment. On a national level hundreds of such counts could provide accurate information on widespread but subtle changes in our wildlife inventory, especially if repeated over a period of years so that these dynamic changes could be correlated with other environmental factors evolving over time. Such breeding counts could thereby be of great importance to a society which must become more and more aware of the deadly signals nature is sending us in the form of deteriorating ecosystems.

Even the indirect benefits of these counts would be great. Breeding sites of uncommon or local birds could be plotted on maps to create a catalog of our vanishing species. Changes from year to year could be studied in local breeders. New explorations of nearby habitats in the breeding season might turn up some surprises, especially with so many observers searching. By comparison with other such breeding counts across the country we might discover that some species are less common than we believed and we might be more motivated to preserve specific tracts of land to help save these species, and with such quantitative documentation as hundreds of breeding counts would yield we would be better armed with reasonable proof to fight for these vanishing resources. We would have the scientific information so necessary for us now.

COMPARISON OF JUNE vs. DECEMBER AND ITS PRACTICAL IMPLICATIONS

Only 15 observers (in 6 parties) participated in June whereas 68 (in 26 parties) had participated in December. All but 4 of those quit by 2 p.m. in June, while almost all birders in December continued until sunset and beyond. The number of party-hours in December was about 277 while in June it was about 36. In December we had 144 species and about 199,052 individuals; in June, 135 species and about 10,482 individuals. The weather in December was partly cloudy with temperature between 20° and 32°. In June it was clear, between 70° and 75°, and unlike December the wind was still.

In December the day is short and the afternoon is not significantly less productive than the morning or evening, whereas in June the day is very long and tiring and the afternoon can be very dull indeed. On future counts in June we will emphasize the first half of the day, from about 1 or 2 hours before sunrise until about 1 or 2 p.m., at which time we will meet for lunch and

compile our lists. The count will terminate there, with perhaps a few persistent observers continuing into the afternoon or evening at their own discretion, to search for any outstanding "misses". This emphasis on dawn and early morning is forced upon us by the natural pattern of bird activity during the day in June. By treating the count merely as a long half-day, however, it will not be too exhausting, although it will still be a 6-to 8-hour day for most of us. The important point is to have as many good active observers as possible afield during the more productive early morning hours.

Although we stayed within the same 15-mile circle, our emphasis in June upon areas within that circle differed from our emphasis in December. Some areas are much more "private" in summer than in winter and create more "police problems." Other areas are productive for birds at one time of year but not at another. The changes in vegetation throughout the year also make for differences in the birds and observation techniques.

BREEDING STATUS PROBLEMS

All birds including migrants should be listed during these counts and an honest appraisal of the breeding status of each species will be required. Each species observed should be classified into one of three categories: "assumed breeders", "possible breeders", or "assumed nonbreeders". Most species will fall into the first category, "assumed breeders", and many others will fall into the last category, "assumed nonbreeders". Only the few borderline cases falling into the middle category, "possible breeders", will require special attention.

Fig. 1. Three Categories of Breeding and Their Symbols

| Assumed Breeders | Possible Breeders | Assumed Nonbreeders |
|------------------|--|---------------------|
| No symbol | Y young (not able to fly) YF young (can fly) E eggs found N nest found BB breeding behavior (e.g., territorial defense, copulation) P possible breeding but no evidence | asterisk |

The most interesting information obtainable from a breeding count is not merely whether a species is present in certain numbers, but rather

whether that species is breeding successfully and in what numbers. For most species observed within the count circle there is no doubt about successful breeding, e.g., Blue Jay, Starling and Am. Robin. We hardly need to search for evidence to prove the obvious. Let us call this class of birds the *assumed breeders*.

The other easy category to deal with is at the other extreme, the *assumed nonbreeders*, composed mostly of migrants, wanderers, and other transients. Although judgment and unambiguous evidence of breeding should determine the status of a species, most transients are obviously not breeding (e.g., landbirds on a boat at sea, or jaegers, or northern species mist-netted along the coast) and there is little or no uncertainty about their status. All such assumed nonbreeding individuals will be indicated by an *asterisk* following their numbers in the list, or following the species name if it has never been known to breed locally.

Only the third class of birds, the *possible breeders*, requires special attention. These species will be in the minority. They will require an indication of the strength of breeding evidence observed. "*Breeding evidence letters*" following their numbers will indicate the nature of the observed evidence. The suggested set of such evidence letters, ranked according to strength of breeding proof, is presented in the middle column of Figure 1. Neither of the two "assumed" categories will use these letters.

As with the December Christmas Bird Counts **boldface** type will be used to indicate species of special interest, rare species, or unusual numbers of individuals.

BREEDING VERIFICATION PERIOD and THE SUPPLEMENTARY LIST

Only those birds (or their active nests) observed on the day of the count would be included in the main list, although "verification" of breeding status would be permitted about 10 days before and 10 days after the count day. If a bird was seen during this 3-week "count period" but *not* on the count day, it would be included in the short *Supplementary List* along with its numbers and status. Simply finding its active nest or young on the count day, however, followed by verification would elevate it to the main list. Notice that the main and supplementary lists are mutually exclusive, so that any species appearing in the main list could not appear in the supplementary list.

The stated and informal objective of this count would be to maximize the number of species on the main list only. The supplementary list, how-

ever, would provide additional motivation for observers to be afield before and after the count day, greatly augmenting our count day information. Since their early field work (looking for supplementary species and nesting locations—for verification in special cases) could be noted in the supplementary list observers would be more motivated to look for new habitats and check out remote locations in advance. The supplementary list would also tend to include migrants not found on the count day, providing us with some needed information on late migration patterns.

Of course since the supplementary list could reflect a very variable and uncertain amount of fieldwork (unknown number of man-hours and miles) it would be difficult to measure what was a large supplementary list and what was a small one. Lack of such a list need not suggest that there were no other birds in the region during the count period but only that there was no field work done other than on the count day.

REPORT FORMAT

A detailed report on our June 3, 1972 count follows. Here we examine general problems with the format and notations of the report.

It has been said that the suggested format is too complicated (2 lists, main and supplementary, with asterisks and 6 letters to indicate evidence). It is somewhat more complicated than that of the regular December Christmas Bird Counts, but we must remember that our June counts have much more information which *must* be reported. The proposed system is the simplest which reports all or almost all of the information which we have to report. Notice that in most cases (the assumed breeders) there will be no symbols (neither asterisks nor evidence letters) Only in those few cases where such information is absolutely necessary will those symbols appear next to the numbers of individuals observed

Even if the reporting system were too complicated for the average birder to feel comfortable with, it would not matter since he could simply ignore the symbols. The people who read Christmas Bird Count reports for statistical analysis of the data or for other technical reasons will need this information. They must be able to get this information from the published report or the report loses much of its value. At least the compiler will understand it, and he should have no trouble eliciting this information from his observers on the day of the count when their observations are still fresh. The system of asterisks and evidence letters should actually help structure the breeding status question in the ob-

servers' minds. While in the field they will begin to ask themselves for every species, "In which of the 3 breeding status categories does this species belong, and should I look for any evidence?" This form of structured thinking becomes easier than unstructured thinking; with a little field practice and it surely will yield more accurate and useful information.

Each team of observers should turn in a field card to the compiler with a total number for each species and, where appropriate, an asterisk or evidence letter. If a compiler gets 2 or more such cards with different breeding evidence letters for the same species, he should probably use that letter reflecting the strongest breeding evidence next to the total number of individuals of that species in the consolidated report for publication. In a few extremely important cases, however, the number of individuals of one species could be followed, in parentheses, by a breakdown of that total number by asterisks and breeding evidence letters.

CONCLUSION

We have used the already-existing Christmas Bird Count "machinery" to conduct a similar survey-census or "round-up" within our standard 15-mile Christmas Count circle at Captree, New York on June 3, 1972. We obtained surprisingly good breeding information with only a fraction of the number of birders we had in December 1971 covering the same area.

We hope to repeat this count annually in early June with growing numbers of observers, and growing interest in local breeding patterns. We hope we have injected some excitement into June birding, when many good bird watchers hang up their binoculars until the fall migration begins. If other Christmas Bird Counts follow this initiative, spurred by a possible promotional campaign by the National Audubon Society, the competition could make it even more exciting, but most of all it could yield enormous quantities of new information about the relatively unknown month of June. Some of our pleasant surprises are described in the following report. If you put enough good birders in the field at one time, you are bound to learn something new, especially in June.

1. **Captree, L.I., N.Y.** 40°42'N 73°15'W, all points within 15-mile diameter, center mouth of Brightwaters Canal, area described 1971. June 3; 6 a.m. to 9 p.m. Clear; temp. 70° to 75°. Wind calm. Fifteen observers in 6 parties, including one by boat. Total party-hours 36, total party-miles not given.

► Com Loon, 2*; Red-throated Loon, 1*; Sooty Shearwater, 2*; Wilson's Petrel, 6*; Double-crested Cormorant, 9*; Great Blue Heron, 3*; Great Egret, 26; Snowy Egret, 48; Louisiana Heron, 3; Little Blue Heron, 3; Green Heron, 9; Black-crowned Night Heron, 42; Yellow-crowned Night Heron, 1; Glossy Ibis, 82; Mute Swan, 4; Canada Goose, 25; Mallard, 75+; Black Duck, 8; Gadwall, 9; Wood Duck, 10; Lesser Scaup, 1*; Oldsquaw, 1*; Surf Scoter, 1*; Red-tailed Hawk, 1; Marsh Hawk, 5; Am. Kestrel, 4; Turkey, 4 [wild?—Ed.]; Bobwhite, 95; Ring-necked Pheasant, 25; Clapper Rail, 6; Virginia Rail, 1; Am Oystercatcher, 5; Piping Plover, 21; Semipalmated Plover, 2*; Killdeer, 4; Black-bellied Plover, 10*; Ruddy Turnstone, 58*; Am. Woodcock, 1; Spotted Sandpiper, 3; Willet, 16; Greater Yellowlegs, 2*; White-rumped Sandpiper, 2*; Least Sandpiper, 27*; Dunlin, 1*; dowitcher (spp.), 4*; Semipalmated Sandpiper, 60*; Sanderling, 11*; Northern Phalarope, 1*; Great Black-backed Gull, 48; Herring Gull, 4100; Ring-billed Gull, 2*; Laughing Gull, 60*; Com. Tern, 1625; Roseate Tern, 11; Least Tern, 185; Black Skimmer, 84; Mourning Dove, 200; Yellow-billed Cuckoo, 6; Black-billed Cuckoo, 3; Whip-poor-will, 1; Com. Nighthawk, 1*; Chimney Swift, 12; Ruby-throated Hummingbird, 2 (1*); Belted Kingfisher, 1, Com. Flicker, 60; Red-bellied Woodpecker, 3; Hairy Woodpecker, 2; Downy Woodpecker, 12; Eastern Kingbird, 9; Crested Flycatcher, 35; Great E. Phoebe, 3; Yellow-bellied Flycatcher, 2*; **Acadian Flycatcher, 1P**; Traill's Flycatcher, 2; E. Wood Pewee, 16; Olive-sided Flycatcher, 2*; Horned Lark, 26; Tree Swallow 30; Rough-winged Swallow, 3*; Barn Swallow, 165; Blue Jay, 235; Com. Crow, 92; Fish Crow, 17; Black-capped Chickadee, 44; White-breasted Nuthatch, 14; Brown Creeper, 5; House Wren, 20; Carolina Wren, 3; Long-billed Marsh Wren, 6; Mockingbird, 22; Gray Catbird, 182; Brown Thrasher, 41; Am. Robin, 163; Wood Thrush, 12; Veery, 25; E. Bluebird, 2; Cedar Waxwing, 1 P; Starling, 700+; White-eyed Vireo, 7; Red-eyed Vireo, 40; Black-and-white Warbler, 16; Blue-winged Warbler, 11; N. Parula Warbler, 2 P; Yellow Warbler, 29; Magnolia Warbler, 13*; Cape May Warbler, 1*; Yellow-rumped Warbler, 2*; Black-throated Green Warbler, 1; Chestnut-sided Warbler, 1; Blackpoll Warbler, 7*; Pine Warbler, 4; Prairie Warbler, 1; Palm Warbler, 1*; Ovenbird, 13; Com. Yellowthroat, 115; Canada Warbler, 1*; Am. Redstart, 9 (6*); House Sparrow, 40+; E. Meadowlark, 10; Red-winged Blackbird, 550; Northern Oriole, 33; Com Grackle, 240; Brown-headed Cowbird, 51; Scarlet Tanager, 5; Cardinal, 19; Rose-breasted Grosbeak, 8 (7*); House Finch, 30; Am. Goldfinch, 20; Rufous-sided Towhee, 70; Sharp-tailed Sparrow, 40; Seaside Sparrow, 9; Chipping Sparrow, 10; Field Sparrow, 7; White-throated Sparrow, 1*; Song Sparrow, 33.

Total, 135 species, about 10,482 individuals.—Sheila Becker, Robert Budliger, Darrel Ford, Robert Gochfeld, Fred Heath, David Holyoke, Howard Hong, Tuvia Kurz, Lee Morgan, Ken Rosenberg, Fred Schaeffer, Guy Tudor, William Ward, Harold Wel-
lender.