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Migratory Bird and Habitat Research Laboratory, "Cooperative Breeding Bird Survey of North America, 1973" (1973). *Research*. 99.

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Surplus

Migratory Non-Game Bird Studies
Bureau of Sport Fisheries and Wildlife
Migratory Bird and Habitat Research Laboratory, Laurel, Maryland 20810

COOPERATIVE BREEDING BIRD SURVEY OF NORTH AMERICA

Purpose: To obtain, by random sampling, an index of abundance of breeding birds. This survey provides information on distribution and relative abundance of North American birds, and specifically measures changes in abundance that result from such factors as changes in land use and widespread applications of pesticides.

Sampling Technique: Each one-degree block of latitude and longitude (about 55 miles wide, east to west, by 70 miles long) is sampled by one or more random transects or "routes." In some States west of the 100th meridian the sample size is two routes for each block, 2 x 2 degrees. The number of routes per degree block varies according to the numbers of qualified observers available, but preferably is uniform within a given State or Province. Starting points and compass directions have been determined at random. Each route is covered once each summer by the following standardized procedure: Begin exactly one-half hour before sunrise; make 50 stops one-half mile apart and count all birds heard at each stop or seen within one-fourth mile during a 3-minute watching and listening period. One observer must do all the observing on a given route, but he may have an assistant to help with recording or driving. Unless driving conditions are very poor, most routes should be completed in 1 to 4 1/2 hours.

Time Period: In most States, routes should be run in June. In Canada and bordering States the first week of July is acceptable (except in Ohio, Pa., and southern N.Y.). In California, Nevada, Arizona, New Mexico, Texas, and Florida routes may be run as early as May, at the discretion of the State Coordinator(s). In general, select a date as near as possible to last year's.

Scouting of Routes is strongly recommended. More leisurely trial runs may be made in advance to become familiar with songs and calls and with roads and stopping locations. A single route may be run more than once if the observer wishes to have the practice, but only one coverage of a route should be reported; this must not be the best of several coverages, but the first one made under satisfactory conditions of weather and familiarity with birds along the route.

STRICT ADHERENCE TO RULES IS ESSENTIAL FOR STATISTICAL ANALYSIS OF RESULTS!

DIRECTIONS FOR RUNNING ROUTES

Equipment: Clip board, pencils, forms supplied by the Migratory Bird and Habitat Research Laboratory, map, binoculars, watch with second hand (or automatic 3-minute timer), gasoline, thermometer.

Weather: To be comparable, routes must be run under satisfactory weather conditions: good visibility, little or no precipitation, light winds. Occasional light drizzle or a very brief shower may not affect bird activity, but fog, steady drizzle, or prolonged rain should be avoided. Except in those prairie States and Provinces where winds normally exceed Beaufort 3, counts preferably should be made on mornings when the wind is less than 8 m.p.h. and not taken if the wind exceeds 12 m.p.h. If you can walk faster than the wind is blowing, winds are very satisfactory.

Wind speed codes (enter Beaufort Numbers on Summary Sheet)

Beaufort Number	Wind Speed miles per hr.	Indicators of Wind Speed
0	Less than 1	Smoke rises vertically.
1	1 to 3	Wind direction shown by smoke drift.
2	4 to 7	Wind felt on face; leaves rustle.
3	8 to 12	Leaves and small twigs in constant motion; wind extends light flag.
4	13 to 18	Raises dust and loose paper; small branches are moved.
5	19 to 24	Small trees in leaf begin to sway; crested wavelets form on inland waters.

Sky condition codes (enter these Weather Bureau code numbers on Summary Sheet)

0	Clear or a few clouds.	4	Fog or smoke.
1	Partly cloudy (scattered) or variable sky.	5	Drizzle.
2	Cloudy (broken) or overcast.	8	Shower(s).

Start 30 minutes before official sunrise. Consult enclosed map, or newspaper or Weather Bureau, for sunrise time. If starting point is more than 25 miles from the city of reference, start 4 minutes earlier for each degree block (55 mi.) east of the city or 4 minutes later for each degree block to the west. Be at the starting position at least 2 minutes before official start, to record weather and speedometer reading. The starting point is the first counting station (stop #1).

Look and listen for exactly 3 minutes and record the number of birds of each species seen within 1/4 mile in all directions and all birds of each species heard regardless of distance; limiting distance for birds seen may be judged as half the distance to the next stop.

Drive 0.5 mile to the next stop. If this stop falls in a place where it is dangerous to stop or where local noise is excessive, the stop may be moved as much as 0.1 mile (forward or back). Do not record any bird seen or heard while driving between stops unless it is subsequently heard at the next stop during the prescribed 3-minute period. In case of excessive traffic noise, up to one additional minute (but no more) may be added to a few stops--but not routinely to all stops. It is important to complete the 50 stops on schedule because singing decreases appreciably soon after 9 a.m.

Speedometers vary slightly, so please mark on your map the number and exact position of one or more stops every few miles--whenever there is a convenient landmark. This will enable you or another observer to stop at the same spots in a subsequent year and to make any necessary adjustments in speedometer readings.

Make 50 stops. Each route consists of exactly 50 stops (24 1/2 miles). Allowing 3 minutes for each stop and 2 minutes driving time between stops, approximately 12 stops will be covered per hour and the entire route will take a little over 4 hours.

What Birds to Count: Count individuals of all species (including Rock Doves) seen or heard that can be identified. Any bird known to be a non-breeder (late migrant, injured bird, or summer vagrant) should be included but marked on the Summary Sheet as such. Species recorded that are not found on the form should be added at the bottom. Estimates are permissible only in those cases where a flock is too large to count, bird by bird, in the brief time it is seen. Do not use check marks even for abundant species. No one will detect all birds within hearing or seeing distance of his stops. Hundreds of birds will be missed. Observers should not try to estimate birds that are missed or include them on their report forms even if they are known to be present. We wish to have reported only those birds actually seen or heard during the prescribed 3-minute stops. Be careful not to count any bird(s) known or strongly suspected to be a bird counted at the previous stop.

Record Keeping: Two types of report forms are enclosed. Take both in the field with you. The summary form is for recording weather conditions at the beginning and end of the count and for reporting a summary of observations that should be compiled after the count has been completed. The form with the 11 columns after each species is to be used for recording birds in the field. Get familiar with this form so you can locate the species rapidly. Use one sheet for each ten consecutive stops. Number the first and last stop at the top of the columns, and enter the starting and ending time for each page. The additional spaces for time and speedometer reading for intermediate stops on each page of the Field Sheet are provided for the convenience of the observer (and such data may prove to be valuable).

Reporting Results: If for any reason it should be impossible for you to cover your route during the prescribed period, please contact your coordinator to see whether arrangements might be made for another observer to run the route, or for you to cover it on a slightly later date. The five original Field Sheets (representing 50 stops), one Summary Sheet, the starting time map and the route map should be sent to Migratory Non-Game Bird Studies, Migratory Bird and Habitat Research Laboratory, Laurel, Maryland 20810 as soon as possible after completion of the count. The map will be returned the following year with new forms. An extra set of forms is provided for your records. You will want to keep a copy of your data so that you can check your machine listing at a later date.

Upon completion of the route, coverage data should be transferred from the Field Sheet to the Summary Sheet. The species totals for each of the 5 Field Sheets should be entered under the appropriate page total columns on the Summary Sheet. The sum of these 5 columns is entered in the Total Indiv. column. The number of stops, out of the total of 50, upon which each species was seen is entered in the Stops per Spec. column (e.g., if Robins are recorded on 15 different stops out of the 50, enter the number 15 in the Stops per Spec. column). Please double check the transfer of data to your Summary Sheet. In the past we have found that many observers omitted species when they transferred data to the Summary Sheet. Please send us your original Field Sheets. We are not concerned if they are "soiled"; we find that copied Field Sheets tend to be less accurate than the originals.

Be sure to furnish all information requested at the top of the Summary Sheet. Please write plainly as all information must be punched. Only 14 spaces can be allotted for the observer's last name and initials. Married women should circle the Mrs. title but use their own initials, not those of their husbands, as the title is not punched because of space limitations.

ALL FORMS MUST BE COMPLETED AND RETURNED BY JULY 31

Processing of Results: Upon receipt of the forms the Summary Sheets are checked against the Field Sheets, addresses are checked, AOU numbers added, and continuity and type codes entered. Data from the Summary Sheet are then punched onto magnetic tape. A machine listing will be mailed to each observer and a State tabulation will be mailed to each coordinator. An analysis of population changes for the entire area covered will later be sent to each participant. Data on distribution and comparative abundance of individual species will be available to research workers on request.

Drivers who itemize deductions on their Income Tax Returns may make a deduction for mileage necessary for the scouting and running of assigned Breeding Bird Survey routes. This should be reported on Form 2106, Statement of Employee Business Expenses, which can be obtained from any Internal Revenue Service office.

Details of Laying Out Routes: Route maps will be provided for each cooperator. Last-minute adjustments will have to be made in some routes because of impassable roads or heavy traffic, so the procedure for laying out routes is given here in detail. It is important that routes sample urban and suburban areas as well as rural and wilderness areas, so routes should not be changed to avoid populated areas or to include favorite birding localities.

Routes will proceed in the specified direction, as closely as possible, unless or until reaching (1) the edge of the one-degree block; (2) a State or Provincial line; or (3) a body of water that cannot be crossed by bridge. Upon (or at the last chance before) reaching such a barrier, turn clockwise and continue. If the route will reach a dead end before the 50th stop, change any or all of it (except the starting point) as necessary to make a continuous route that does not duplicate itself or another route. Maintain the direction as closely as possible to the original direction, or the next direction clockwise, returning to the original direction at the first opportunity. If routes must cross, omit from the second route any stop that falls within one-half mile of any stop on the first route; add the extra stop at the end. If one route must run along a short portion of another route, the first route has priority and the second route should skip the duplicate stops and add them at the end. If possible, avoid Federal numbered highways, Interstate highways, and State numbered highways as well as other roads that are apt to have heavy traffic at the time of day you will be there. If it is necessary to traverse a well-traveled highway for a short distance, and if traffic interferes seriously with observations, make counts at the first two stops on this highway (if this can be done safely), then proceed without stopping until you can leave the highway (then stop about 1/4 mile after leaving it). Add the extra stops at the end of the route.