

BREEDING BIRD SURVEY - MARITIMES

1967

Objective

To look for substantial changes in land bird populations in the Maritime Provinces by means of a statistically acceptable random sampling plan.

Justification

Man's activities are causing rapid changes in the environment, changes which may be expected to affect bird numbers. The spread of suburban residential areas on the one hand, and the reversion to forest of unprofitable agricultural land on the other, are changing the aspect of the landscape, while the widespread use of poisons (biocides) in agriculture and forestry may be changing natural communities as well as those modified by man. No doubt many bird populations have increased or declined in recent years, though such trends have not, for the most part, been satisfactorily assessed, except in the case of some game species. Data from breeding bird census plots have never covered enough areas and a sufficient variety of habitats to permit extrapolation over larger areas. Sampling procedures are needed for the assessment of trends in bird populations over wide areas.

DATA FILE

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Procedure

The technique used for the Maritime Provinces Breeding Bird Survey was devised and experimented with in Maryland and Delaware in 1965 (Robbins, 1965a and b). We divided each province into blocks along the degree lines of latitude and longitude. Blocks whose area was less than 50 per cent land were combined with adjacent ones so that each had approximately the same land area, about 2,500 square miles (see Fig. 1). Within each block three points were selected, (four on Prince Edward Island), using a table of random numbers to determine the latitude and longitude of the starting point, in minutes. The latitude and longitude, in minutes, determined the basic direction of a route, thus:

<u>Latitude</u>		<u>Longitude</u>		<u>Direction</u>
odd	with	odd	=	North
odd	with	even	=	East
even	with	even	=	South
even	with	odd	=	West

Each survey route started at the closest point on a road to the randomly selected point, and continued for 24.5 miles in the basic direction. If the route reached an impassable area or the edge of the degree block before covering 24.5 miles, or if no road existed in the required direction, the basic direction was altered by 90° clockwise. This process was repeated when necessary, but the route would resume the original direction if it later became possible to do so.

Surveys were carried out during June, in favourable weather, starting one-half hour before sunrise. Each survey route comprised 50 stops of three minutes each at one-half mile intervals, the total length thus being 24.5 miles. All birds heard, regardless of distance, and all birds seen within one-quarter mile of the stopping point during the three minute count period, were recorded on forms. As far as possible, stops were made in the same places as in 1966. Additional information requested included weather conditions at the start and end of each survey, time of stops, and deviations (if any) from the route laid out in advance.

Observers were recruited by letter or personal contact. Each received instructions, forms, and maps with the route marked, the completed forms and maps to be returned after the survey.

Results

(a) Coverage. At least one route was covered in each block in the Maritimes. Second routes were covered in nine of ten blocks in Nova Scotia, in seven of eleven blocks in New Brunswick, and in each half of Prince Edward Island. Third routes were covered in blocks NS 1 and NB 8, where the information was desired by Cape Breton Highlands National Park and by the Canadian Wildlife Service Sackville office respectively. The approximate location of each route is shown in Figure 1.

Six routes were covered by more than one observer in 1967, one being surveyed by four different people. Unfavourable weather prevented more complete check coverage, and probably invalidated comparisons between different coverages of two routes. The check coverages showed up species with which certain observers were unfamiliar under the conditions of the survey, as well as detecting a hearing deficiency on the part of one observer.

(b) Birds noted. A total of 145 species was recorded on the 43 routes. The numbers of species and of individuals on each route are listed in Table 1, with the figures for 1966 repeated for comparison. Four species, Barn Swallow, Robin, Yellowthroat, and White-throated Sparrow, were found on all routes, and five others, Crow, Starling, Grackle, Junco, and Song Sparrow, were noted on all routes except one. Average numbers per route of the 20 most numerous species and the percentage of stops at which each was recorded are listed in Table 2, in comparison with similar data for these species in the 1966 survey. Comparative data for some less common species which showed marked changes in numbers or frequency of appearance are listed in Table 3.

Discussion

(a) Coverage. Of the 44 routes set up at the start of the 1966 survey, 33 were surveyed in 1966 and 39 in 1967. One route surveyed in 1966 was not covered in 1967, and four others were not surveyed in either year. Two of the latter (NB 1-2 and NB 2-2) are in remote areas, where no potential observers are known, but the others do not involve unreasonable travel. As the routes are 24.5 miles long, nearly all routes involve round trips of over 50 miles, and the average round trip is of the order of 100 miles. Eight routes involved round trips of over 200 miles. It should be possible to obtain regular coverage of routes NB 6-2 and NB 10-2 which were not covered in 1967, as these start only 25 miles from Fredericton and 40 miles from Saint John, respectively.

Nearly one-half of the routes were surveyed in the first half of June in 1967, whereas in 1966 only eight of 33 were done before the middle of the month. However, the mean date for all routes surveyed was only two days earlier in 1967 (16 June vs. 18 June), as most observers advisedly refrained from making surveys before 10 June on account of the cold weather and retarded phenology that prevailed throughout May 1967. A few surveys were too early, before some bird species had started singing regularly. In 1966, only two routes on Cape Breton Island surveyed on 2 and 4 June were

probably too early, but in 1967 five of six routes covered in the first week of June were too early, particularly for Traill's Flycatchers and Red-eyed Vireos. On the other hand, nine routes were surveyed in the last week of June, and two in the first week of July in 1967. Observers who cover only one route should try to complete their survey before the last week of June, but those who survey several routes will have less choice of dates.

(b) Comparability of coverage. The question of comparability did not arise in 1966, the first year of the Breeding Bird Survey, and insufficient attention was then paid to possible difficulties in obtaining comparable coverage in 1967. Four factors seem likely to affect comparability of surveys, namely: observer, date, conditions, and adherence to rules.

1. Observer and assistant - observers have different abilities to hear or see various species; an observer who works alone must use part of each 3-minute stop for recording data and noting time, and thus either reduces his observing time or delays the finish of the survey.
2. Phenological date - birds breed at different times during the season, so an early survey may miss late arrivals, while a late one may include flying young; following a cold spring all schedules will be later than following a warm one, but such differences decrease from start to end of June.

3. Conditions - wind, rain, and fog will all tend to reduce the number of birds recorded; observers are less likely to start if it is raining or foggy, but wind is more likely to be an important disturbing factor. Traffic varies from day to day, but is nearly always less on Sundays than on other days.
4. Departure from stated procedure - this should not need to be considered, but alas! The most common deviation from the rules is in starting time, as most people have to drive up to 50 miles to the starting point. Persons who do not know birds well by sound may feel that by starting later they miss the period of five stops before it is light enough to see birds. If a particular habitat is traversed only in these stops, a serious difference can result. Other observers, either through trying to find unidentified birds or through difficulties in recording data, prolong the finish far beyond the period when song is at its peak. If habitats were uniform, the location of each stop would make little difference; as it is, the stops marked on a map should always take priority over mileage indicated on a speedometer. Occasionally routes vary due to road alterations, and these changes of course cannot be avoided.

The following scheme is proposed for objective rating of coverages of a particular route, using a four point scale for each factor.

1. Observer: 3 - same observer or observer/assistant team;
 2 - same observer with different assistant;
 1 - same observer with assistant one year and alone other, or different observers of similar competence;
 0 - different observers of unequal competence.
2. Date: 3 - within five days;
 2 - five to ten days;
 1 - eleven to twenty days;
 0 - over twenty days between surveys.
3. Conditions: 3 - comparable without qualifications;
 (weather and traffic) 2 - slightly less favourable conditions in one year;
 1 - moderately unfavourable conditions in one year;
 0 - markedly unfavourable conditions in one year.
4. Rules: 3 - no obvious departure from rules;
 2 - start 10-20 minutes different from recommended time, or end more than $4\frac{1}{2}$ hours after start, or minor departure from marked stops;
 1 - start 20-30 minutes different, or end more than 5 hours after start, or moderate departure from marked stops;
 0 - start more than 30 minutes different, or route changed by more than five stops.

Two coverages of a route should score at least eight to be considered comparable. Probably any zero scores should disqualify a comparison. These standards may prove to be overly restrictive, but they should encourage observers to strive for better comparability. Coverage which is not fully comparable with the previous year is still preferable to no coverage, as without a survey there can be no comparisons with succeeding years. Comparability scores for all routes surveyed both in 1966 and 1967 are given in Table 4.

(c) Comparisons of numbers. Methods for comparing numbers of birds seen in different years are being studied. If the habitat is relatively uniform throughout the region, as might be the case in a prairie state such as Kansas, one might simply calculate the mean number per route and the confidence interval for each species in each year to be compared. This was done for Maryland data in the 1966 report on the Breeding Bird Survey (Robbins and Van Velzen, 1967). In the Maritimes, most routes contain a variety of habitats, and many species vary greatly in density from one habitat to another, so that an average number per route is a nebulous figure with extremely wide confidence limits. Using this procedure for the 1966 and 1967 data on the 18 fully comparable routes in the Maritimes, not one species showed a statistically significant change, and only the Purple Finch approached that level. There are so few comparable routes within each habitat type in the Maritimes

that grouping of routes with similar habitats is unlikely to be helpful.

An alternative procedure is to consider the total number of birds of a species seen in each year as a sample of those actually present, and to test the hypothesis that the two samples are representative of the same population. Provided the samples are of sufficient size, the chi-squared test is adequate as well as being simple to use.

The total number of birds listed was greater in 1967 than in 1966 on 16 of the 18 comparable routes, the aggregate increase being 10.9 per cent. Since the procedure used was the same in both years, this difference might be due to variations in date, weather, or experience of the observers. The comparable routes were surveyed four days earlier in 1967, on the average, than in 1966; however, the season was phenologically retarded by five days or more in 1967, making the effective date of surveys in this year nine days earlier than in 1966. The earlier survey date may thus have had more influence than would at first be thought likely, but major changes in date were only correlated with marked changes in numbers in one case and possibly a second. Temperatures averaged about four degrees cooler in 1967 than in 1966, but this was largely due to very low (30° - 40° F) starting temperatures on four Nova Scotia routes, none of which showed disproportionately large changes in numbers. Changes in wind velocity were better correlated with changes in number on individual routes, but the mean wind speed

for all surveys was nearly the same in both years. Finally, all observers were unfamiliar with the procedure at the start of the 1966 surveys, while all had had some experience prior to 1967. Increased confidence in separating individual songs when several of a species were heard at one stop could account for an appreciable increase in numbers, particularly of the commoner species such as Robins, Swainson's (Olive-backed) Thrushes, and White-throated Sparrows. Probably both the earlier phenological date and the greater experience of the observers in 1967 contributed to the increased numbers listed, and any hypothesis to be tested should take this increase into account. The numbers of routes showing increases or decreases from 1966 to 1967, and the chi-squared values based upon the alternative hypotheses of unchanged numbers and of a 10.9 per cent increase (due to increased sampling efficiency), are shown for selected species in Table 5. Increased numbers of the cardueline finches, especially Purple Finch, Pine Grosbeak, and Red Crossbill, were obvious throughout the preceding winter as well as on the Breeding Bird Survey, although numbers of the two latter species were too small for inclusion in the statistical tests.

In their report on the Breeding Bird Survey, Robbins and Van Velzen (1967) suggested that with a sample of 40 to 50 routes in a province or group of adjacent provinces only changes exceeding 30 to 40 per cent in numbers of any particular species could be documented using the

confidence interval method. Smaller changes could not be detected without still more routes. We hope that we can achieve comparable coverage on more routes in future than was the case in 1966-67 (only 18 routes comparable out of 32 covered in both years). However, our experience was not unique; in Maryland, only 28 of 49 routes covered in both 1965 and 1966 were surveyed by the same observer in both years, whether or not other factors would have permitted comparisons!

(d) Check coverage. Two persons surveying the same route in the same year under similar conditions (date, weather, adherence to rules) obtain independent samples of the birds present there. These samples will differ chiefly in relation to the abilities of the individuals to see, hear, or identify the various bird species. Time did not permit check coverage relating all observers in the Maritimes to one "standard observer", as was done in Maryland and Delaware in 1965 and 1966. The results revealed a few individuals who had had little experience in identifying birds by song. Such persons were provided with a copy of the list obtained by another observer on the same route, so that they would be aware of which species they were missing.

One route (NS 7-2) was covered independently by four persons, and some of the results are compared in Table 6. Using the comparability criteria suggested above (p. 7-9), only surveys 1 and 2 are strictly comparable, partly because survey 3 extended over more than five hours and survey 4

started 30 minutes late. The numbers of individuals on survey 4 may have been influenced by slightly adverse weather, but the number of species noted was quite uniform on all surveys, between 53 and 59. The pooled data in Table 6 suggest that results of surveys 1, 2, and 3 were more similar to each other than any were to survey 4. This might suggest that observer 2 who recorded the largest number of individuals was more effective than the others. However, observer 1 worked alone while each of the others had an assistant, and one might anticipate that less song would be heard in the last week of June when surveys 3 and 4 were made. It is probably unwise to attempt to draw firm conclusions about effectiveness of observers except with respect to individual species.

If one of the four observers noted less than half as many of a species as did any of the others, one would suspect that he was less efficient for that species, and conversely, if he noted more than twice as many of a species than did the others, he appeared to be more effective. A few such cases did appear on this route: observer 1 listed very low numbers of Ravens and Crows, which with other evidence indicates that he has a hearing deficiency for these low-pitched calls. He also missed Purple Finches, which is unlikely to be due to the same cause. Observer 2 had a very high count of Barn Swallows, which could be due to chance in this highly mobile species, but his failure to list Myrtle Warblers seems more likely due to misidentification.

Observer 3 had a ratio of Hermit to Olive-backed Thrushes differing markedly from those found by other observers, though the total number of thrushes noted was similar; these species are easily confused at a distance. Observer 4 had an unusually high count of Black-and-White Warblers, and low counts of Black-throated Green Warblers and Redstarts, which suggests misidentification may be involved more often than most people care to admit. The samples of most of these species are not very large, usually about 10 to 20 birds on each survey, so it will probably be necessary to make several similar comparisons before drawing firm conclusions.

Some other species seemed to be markedly affected by the date of the survey. The counts of Yellow-bellied Sapsuckers, Tree Swallows, Boreal Chickadees, Magnolia Warblers, Northern Waterthrushes, House Sparrows, and White-throated Sparrows were twice as great on surveys 1 and 2 as on the later surveys, while numbers of Hairy Woodpeckers, Chestnut-sided Warblers, and Yellowthroats were twice as great on surveys 3 and 4. These are probably related to increased song or other activity of particular species at different stages of the breeding cycle. This emphasizes the need for making surveys at similar phenological dates each year, since such differences may be even more important than differences between observers.

Summary

The breeding bird survey in the Maritimes, set up by random sampling in 1966, was continued in 1967. A total of 43 survey routes was covered, including at least one in each degree-block in the Maritimes. In all, 145 species and 31,745 individual birds were recorded by observers and assistants. Due to variations in observer, date, weather conditions, and adherence to prescribed procedures, only 18 of 32 routes surveyed in both 1966 and 1967 received fully comparable coverage. Data from the 18 comparable routes indicate that statistically significant changes in numbers of three bird species occurred between 1966 and 1967 in the Maritimes (Purple Finch increased, Raven and Song Sparrow decreased), and that more changes might be detected when a greater number of routes with comparable coverage is available. Data from one route surveyed by four observers on various dates during June suggested differences in abilities of these observers for detecting some species, but emphasized the need for surveys to be made at the same stage of the breeding cycle each year.

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Table 1. Number of bird species and number of individual birds recorded per route

Route	Name	Number of Species		Number of Individuals	
		<u>1966</u>	<u>1967</u>	<u>1966</u>	<u>1967</u>
NOVA SCOTIA					
1-1	Mabou	50	58	476	536
1-2	Cape North	50	55	571	549
1-3	Pleasant Bay	-	54	-	563
2-1	Point Michaud	55	47	531	467
2-2	Loch Lomond	43	41	333	373
3-1	Roman Valley	55	58	517	537
3-2	Larry's River	-	-	-	-
4-1	Trafalgar	60	63	429	496
4-2	James River	-	65	-	889
5-1	Stewiacke	55	57	500	444
5-2	Tatamagouche	54	61	542	570
6-1	North Kingston	40	46	683	854
6-2	Amherst	51	59	466	549
7-1	Peggy's Cove	52	53	784	772
7-2	Beaverbank	-	59	-	624
8-1	Gaspereau Lake	53	50	475	524
8-2	Chester	55	52	514	364
9-1	Bridgetown	50	42	793	727
9-2	Digby Neck	-	43	-	884
10-1	Shelburne	47	51	298	496
10-2	Barrington	36	62	495	1,030

Table 1. Number of bird species and number of individual birds recorded per route (concluded)

Route	Name	Number of Species		Number of Individuals	
		<u>1966</u>	<u>1967</u>	<u>1966</u>	<u>1967</u>
PRINCE EDWARD ISLAND					
1	Alberton	37	49	1,538	1,355
2	Dundas	39	42	575	725
3	Bedeque	-	42	-	1,141
4	Dalvay	-	47	-	783
NEW BRUNSWICK					
1-1	Green River	42	46	425	566
1-2	Lac - Baker	-	-	-	-
2-1	Grand Falls	43	49	522	968
2-2	Kedgewick River	-	-	-	-
3-1	Nepisiguit River	55	58	735	777
3-2	Balmoral	-	67	-	1,184
4-1	Escuminac	64	64	723	929
4-2	Paquetville	56	56	604	686
5-1	Plaster Rock	54	52	602	870
5-2	Cloverdale	-	64	-	936
6-1	Napadogan	54	63	616	674
6-2	Minto	-	-	-	-
7-1	Blackville	-	56	-	673
7-2	Red Bank	-	71	-	1,142
8-1	Richibucto	61	71	852	947
8-2	Fontaine	70	76	862	994
8-3	Jolicure	-	52	-	651
9-1	Oak Hill	55	55	381	386
9-2	McAdam	70	69	809	829
10-1	Jemseg	61	64	648	743
10-2	Pennfield Ridge	71	-	664	-
11-1	Hampton	78	77	655	601
11-2	Penobsquis	66	77	869	947

Table 2. Mean number of birds per route and per cent of possible stops at which species were noted on Breeding Bird Survey, Maritimes, 1966-67

(a) The 20 species recorded in greatest numbers in 1967, listed in order of abundance in that year

Species	Mean number birds per route			Per cent of possible stops		
	1966 32 routes	1967 43 routes	1968 46	1966 1600 stops	1967 2150 stops	1968 2300
① Robin	55.7	70.9	66.5	62.9	70.5	67.7
② White-throated Sparrow	42.6	56.9	53.8	54.0	62.6	60.4
④ Common Grackle	29.0	40.7	38.8	20.9	25.2	27.9
③ Starling	34.2	40.4	43.3	23.4	28.1	27.3
⑤ Song Sparrow	34.6	32.6	33.3	44.0	42.4	43.5
⑥ Common Crow	26.2	32.3	32.4	30.9	35.2	35.9
⑧ Barn Swallow	18.4	20.8	19.6	18.0	17.3	19.3
⑦ Yellowthroat	19.9	20.0	21.8	32.2	32.1	33.3
⑩ American Goldfinch	9.0	19.6	16.9	11.8	19.0	19.7
⑫ Herring Gull	15.7	19.3	15.2	8.4	7.8	7.7
⑬ House Sparrow	14.2	18.8	15.1	12.6	13.9	12.5
⑳ Ruby-crowned Kinglet	16.4	17.2	12.4	27.7	27.9	20.4
⑭ Slate-coloured Junco	15.3	16.2	14.2	24.7	23.9	21.8
⑪ Red-winged Blackbird	15.1	16.2	16.7	14.2	14.1	14.5
⑨ Swainson's Thrush	15.2	16.0	17.8	22.1	23.4	25.0
⑰ Tree Swallow	13.3	15.7	14.1	14.1	15.9	15.7
Bank Swallow	11.3	14.8		3.1	3.4	
⑮ Savannah Sparrow	13.1	14.5	14.2	16.3	18.8	18.0
⑱ Magnolia Warbler	13.2	12.2	13.8	19.4	19.0	20.7
⑱ Evening Grosbeak	4.0	12.0	14.0	3.5	8.2	7.5
⑰ Traill's Flycatcher		12.0	14.2		18.7	22.1

Table 3. Mean number of birds per route and per cent of possible stops at which species were noted on Breeding Bird Survey, Maritimes, 1966-67

(b) Some less common species which changed markedly in numbers between 1966 and 1967

Species	Mean number birds per route		Per cent of possible stops	
	1966 32 routes	1967 43 routes	1966 1600 stops	1967 2150 stops
Common Snipe	3.7	5.8	6.6	9.8
Willet	0.9	1.3	1.4	1.4
Least Flycatcher	6.1	5.0	10.9	8.6
Purple Martin	1.2	0.4	0.9	0.2
Common Raven	9.3	7.5	11.2	10.0
Yellow Warbler	7.8	7.5	13.4	11.0
Chestnut-sided Warbler	5.8	3.9	10.1	7.1
Brown-headed Cowbird	7.5	10.3	10.8	12.3
Purple Finch	4.8	9.1	8.4	14.3
Pine Grosbeak	0.3	1.9	0.6	2.6
Red Crossbill	0.0	0.7	0.0	0.7
Chipping Sparrow	5.2	8.3	8.6	13.6

Table 4. Comparability scores for various factors on Breeding Bird Survey routes covered in 1966 and 1967; Maritimes. Routes not covered in both years are omitted

Route	Observer	Date	Conditions	Rules	TOTAL
N.S. 1-1	3	1	3	3	10
1-2	3	3	1	0*	7
2-1	3	1	1	1	6
2-2	3	2	2	2	9
3-1	3	2	2	3	10
4-1	3	3	2	3	11
5-1	3	3	1	1	8
5-2	3	2	3	3	11
6-1	1	3	2	1	7
6-2	3	3	1	3	10
7-1	1	1	3	2	7
8-1	3	2	2	0*	7
8-2	1	1	3	2	7
9-1	1	1	2	3	7
10-1	1	2	1	1	5
10-2	1	3	0 ^x	2	6
N.B. 1-1	1	2	2	0 ⁺	5
2-1	3	2	1	1	7
3-1	3	3	3	3	12
4-1	3	2	3	1	9
4-2	3	3	3	3	12
5-1	3	3	3	1	10
6-1	3	1	2	1	7
8-1	3	3	2	3	11
8-2	3	3	3	3	12
9-1	3	2	3	2	10
9-2	3	1	2	3	9
10-1	3	1	1	3	8
11-1	2	1	1	2	6
11-2	3	3	3	2	11
P.E.I. 1	3	1	3	3	10
2	1	3	2	0 ⁺	6

*Route changed; ^xAdverse weather; ⁺Too early start.

Table 5. Comparisons of 1966 and 1967 results for selected species on 18 comparable Breeding Bird Survey routes, Maritime Provinces

Species	Total number seen		Number routes with		Chi-squared values	
	1966	1967	species present	species increased	assuming no change	assuming 10.9% increase
Least Flycatcher	114	78	15	4	1.31	2.01
Common Raven	177	112	18	5	3.46	4.94*
Hermit Thrust	101	160	16	10	3.18	2.08
Yellow Warbler	90	54	18	5	2.40	3.30
Magnolia Warbler	294	258	17	5	0.15	0.42
Chestnut-sided Warbler	109	84	15	6	0.43	0.53
Brown-headed Cowbird	156	231	18	12	2.94	1.78
Evening Grosbeak	61	103	14	9	2.95	2.05
Purple Finch	86	182	17	15	14.1**	10.9**
American Goldfinch	167	255	16	10	4.01*	2.54
Chipping Sparrow	118	169	18	10	1.66	0.95
White-throated Sparrow	882	1160	18	15	5.26*	2.53
Song Sparrow	589	447	18	6	2.72	4.58*

* Probability less than 5 per cent. $\chi^2 > 3.841$

**Probability less than 1 per cent. $\chi^2 > 6.635$

Table 6. Comparison of surveys on one route (N.S.7-2) by various observers, June 1967

	Survey number			
	1 Date in June- 7th	2 11th	3 25th	4 30th
Total number of species	55	59	59	53
Total number of birds	517	624	526	400
Number of birds of 35 species noted on all surveys	451	541	454	354
Per cent of total	87	87	86	88
Number of species noted on only one survey	3	7	3	6
Number of birds of species noted on only one survey	8	17	4	15
Per cent of total	2	3	1	4
Number of birds of 47 species in common between surveys 1 and 2	489	587		
Number of birds of 47 species in common between surveys 1 and 3	497		507	
Number of birds of 40 species in common between surveys 1 and 4	472			368
Number of birds of 46 species in common between surveys 2 and 3		589	500	
Number of birds of 39 species in common between surveys 2 and 4		562		365
Number of birds of 44 species in common between surveys 3 and 4			477	382

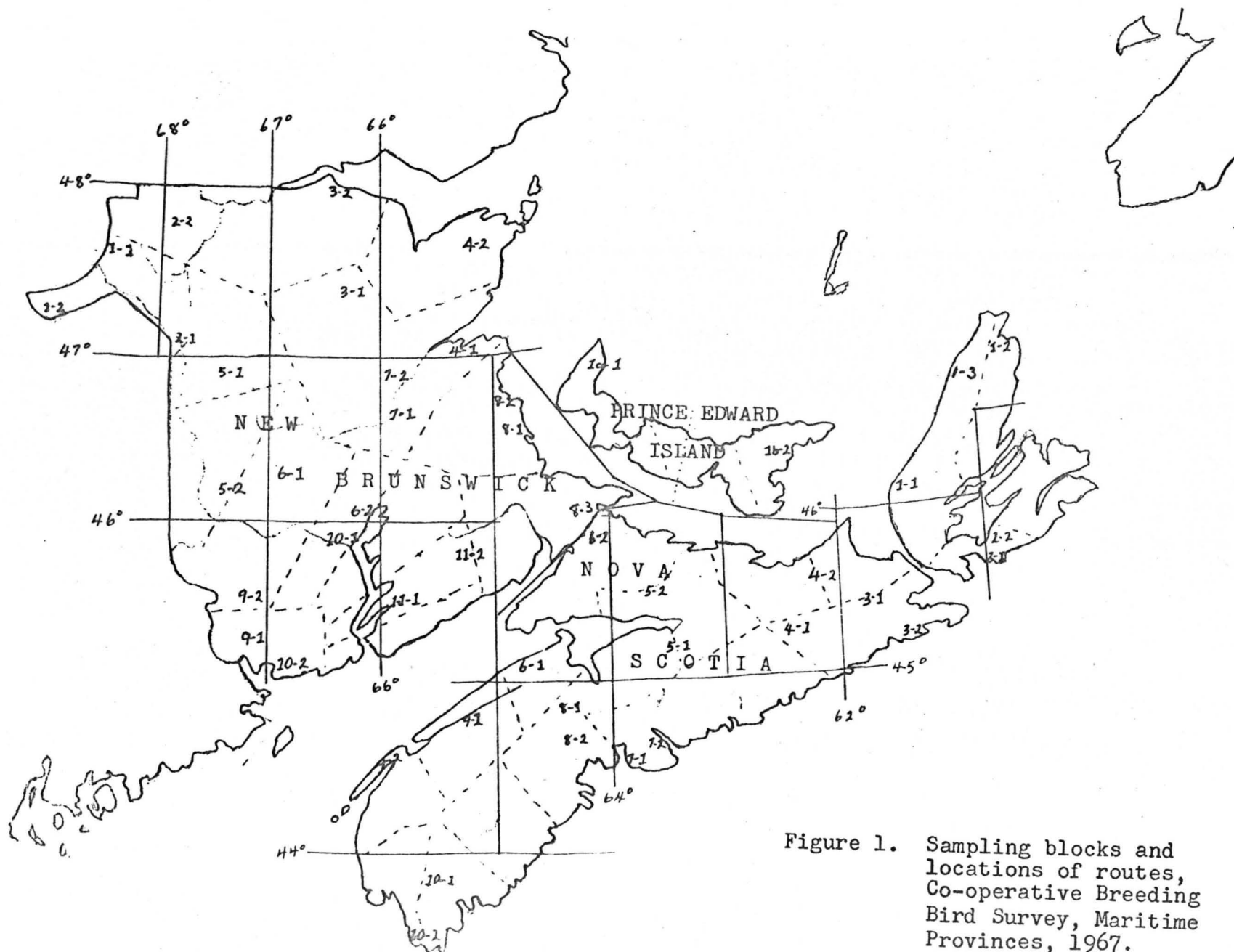


Figure 1. Sampling blocks and locations of routes, Co-operative Breeding Bird Survey, Maritime Provinces, 1967.