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Black Duck Breeding Pair and Brood Surveys
Prince Edward Island
1983 and 1984

A total of 100 wetlands was randomly selected by computer from the Wetland Classification for Prince Edward Island in 1983. Wetland classes from 40 to 100+ were sampled at five point intervals. The number of wetlands falling within each five point interval is shown in Table 1 and it should be noted that the distribution is heavily weighted toward classes between 60 and 100. Individual classifications ranged from a low of 42.5 to a high of 104 with most falling in the 76 to 80 and 86-90 ranges. The same sample base was also used in 1984. No pairs or broods were observed on 28 areas in 1983 and will be considered "constant zeros" for a five year period. Eight of the "constant zero" areas were classed in the 60's, six in the 70's and three in the 80's with the remaining eleven being classed below sixty.

A total of four surveys of the 100 areas selected was conducted with the exception of those considered to be "constant zero" on the first survey in 1983. In addition, some other areas were not surveyed four times in 1984 if during the first one or two visits they were considered to possess zero potential for waterfowl. This should not eliminate those areas from future surveys should spring conditions maintain suitable habitat. Survey periods were distributed as follows in both 1983 and 1984: (1) April 26-May 18; (2) May 24-June 17; (3) June 3-July 28; (4) July 3-August 28. All observations were accomplished by walking and/or canoeing. Also exact time of initiation was scheduled each year to coincide with ice-out on selected indicator ponds to ensure that surveys began at the same phenological time each year. This procedure should be followed in scheduling future surveys to maintain consistency.

During the four survey periods, totals of 320 and 298 individual surveys were conducted in 1983 and 1984, respectively. The difference in the number conducted is accounted for primarily by seasonal differences in water levels, i.e. in 1983 some areas held water during all four survey periods while in 1984 lower water levels caused areas to dry out and, thus, eliminated the need for four surveys. These conditions will vary annually as will the number of individual surveys required to cover the random sample of wetlands.

A strong correlation continued to be evident between Black Duck breeding pairs and broods and wetland classification, i.e. the average number of birds observed per area increased with wetland class. For breeding pairs, wetlands in the 96-100 range were highest in 1983 while for broods the 100+ range was most significant. In 1984, wetlands in the 86-90 range were most productive for both pairs and broods. Only six breeding

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pairs were observed in wetlands classed below 60 in 1983 and only five in 1984. No broods were observed either year on wetlands below sixty.

In total, significantly more breeding pairs were observed in 1984 (511) than in 1983 (383). This is consistent with observations in other Maritime surveys where large numbers of breeding pairs were found early in the season; however, the resulting number of broods counted was notably lower in 1984. On P.E.I. a total of 197 Black Duck broods was observed in 1983 while only 61 were found in 1984. This would appear to suggest that either breeding success was low in 1984 or that breeding pairs observed moved elsewhere to breed.

Survey results were grouped by two week intervals to identify peak breeding and brood rearing periods (Table 2). The average number of breeding pairs observed per survey was largest between April 25 and May 8 in both 1983 and 1984; however, average breeding pair numbers per survey remained higher during almost all survey periods in 1984 than in 1983. Conversely, the average number of broods per survey was highest in 1983 during all survey periods except one. This relationship would tend to indicate that breeding pairs remained in the area but reproduction was poor.

While the above observations are only for Black Duck and are based upon rough hand tallies, the value of the P.E.I. surveys for identifying year-to-year variations as well as long term trends is evident. To make the most complete and effective use of the data, a computer system which is in place should be made operative at an early date to permit comparisons of all species and variables. This will also ensure an accurate and secure means of storing data over the long term. Complete data analyses should be a high priority and the surveys should be continued under the developed standard procedures.

Table 1. Distribution of Black Duck Breeding Pairs and Brood Observations on P.E.I. in 1983-84 by Wetland Class

Wetland Class	*No. of Areas	Number of Surveys		Number of Black Duck				Average No./Survey **			
		1983	1984	Breeding Pairs 1983	Breeding Pairs 1984	Broods 1983	Broods 1984	Breeding Pairs 1983	Breeding Pairs 1984	Broods 1983	Broods 1984
40-45	3	10	8	1	2	0	0	0.10	0.25	0.00	0.00
46-50	4	6	3	3	0	0	0	0.50	0.00	0.00	0.00
51-55	5	6	7	0	0	0	0	0.00	0.00	0.00	0.00
56-60	4	9	7	2	3	0	0	0.22	0.43	0.00	0.00
61-65	11	30	26	9	12	2	1	0.30	0.46	0.07	0.04
66-70	10	37	34	23	29	2	0	0.62	0.85	0.05	0.00
71-75	8	28	27	25	33	8	3	0.89	1.22	0.28	0.11
76-80	13	41	38	23	27	12	8	0.56	0.71	0.29	0.21
81-85	7	20	19	17	19	6	2	0.85	1.00	0.30	0.10
86-90	13	48	53	92	126	25	19	1.92	2.38	0.52	0.36
91-95	9	36	34	65	81	20	10	1.80	2.38	0.55	0.29
96-100	6	19	20	67	79	6	7	3.52	3.95	0.32	0.35
100+	7	30	22	56	100	26	11	1.86	4.54	0.86	0.50
Totals	100	320	298	383	511	107	61	1.20	1.71	0.33	0.20

*Distribution of Wetland Class for 100 randomly selected wetlands.

**Average number of breeding pairs and broods based upon total number of surveys conducted in each wetland class.

broods/hrs ratios (BD)

Table 2. Distribution of Breeding Pairs and Brood Observations on E.I. in 1983-84 by Survey Period

Survey Period	1983		1984		Number of Black Duck Breeding Pairs		Average/Survey Breeding Pairs		Number of Black Duck Broods	
	Surveys Conducted	1983	1984	1983	1984	1983	1984	1983	1984	
40-45	0	0	0	0						
50	0	0	0	0						
55	0	0	0	0						
60	0	0	0	0						
65	.23	0	.09	0	0	0	2.6	2.8	0	0
70	.08	0	0	0	0	0	1.2	2.8	0	0
75	.31	0	.09	0	0	0	1.2	2.6	0.1	0
Apr 11-15	.52	0	.30	0	0	0	1.1	1.0	0.3	0.02
May 9-22	.35	0	.10	0	0	0	0.6	0.8	0.6	0.3
May 23-June 5	.27	0	.15	0	8	1	0.4	1.1	1.1	0.5
June 6-19	.31	0	.12	0	6	4	0.4	1.3	0.7	0.3
June 20-31	.09	0	.09	0	32	11	0.1	0.6	0.5	0.6
July 1-17	.46	0	.11	0	32	11	0.1	0	0.3	0
July 18-31	.28	0	.12	0	20	11	0.4	1.1	1.1	0.5
Aug 1-15		16		44	30	15	0.4	1.3	0.7	0.3
Aug 16-31					9	19	0.1	0.6	0.5	0.6
Total					107	61	1.2	1.71	0.3	0.20

ratios are extraordinarily low, probably because many transient pairs are included in totals.

surely a lot of repeat sightings of some pairs or broods?

Table 2. Distribution of Black Duck Breeding Pair and Brood Observations on P.E.I. in 1983-84 by Survey Period

Surveys Period	Number of Surveys Conducted		Number of Black Duck Breeding Pairs Broods				Average/Survey Breeding Pairs Broods			
	1983	1984	1983	1984	1983	1984	1983	1984	1983	1983
April 25-May 8	80	48	209	134	0	0	2.6	2.8	0	0
May 9-22	11	35	13	97	0	0	1.2	2.8	0	0
May 23-June 5	64	43	76	111	8	1	1.2	2.6	0.1	0
June 6-19	23	39	25	38	6	4	1.1	1.0	0.3	0.02
June 20-July 3	58	38	35	32	32	11	0.6	0.8	0.6	0.3
July 4-17	18	21	7	21	20	11	0.4	1.1	1.1	0.5
July 18-31	40	44	16	44	30	15	0.4	1.3	0.7	0.3
Aug.1-14	19	30	1	17	9	19	0.1	0.6	0.5	0.6
Aug.15-28	7	0	1	0	2	0	0.1	0	0.3	0
Total	320	298	383	511	107	61	1.2	1.71	0.3	0.20

surely a lot of repeat sightings of some pairs or broods?