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Kill of migratory game birds other than waterfowl by hunters in Canada 1975

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Introduction

The Canada Migratory Game Bird Hunting Permit is required to hunt Coots, Common Snipe, Woodcock, Sandhill Cranes, Band-tailed Pigeons and Mourning Doves, as well as ducks and geese. The apparent increase in hunter interest in migratory game bird species other than waterfowl, especially in the United States, makes it desirable to report separately on the estimated annual kill and amount of recreation for hunters provided by these species.

Survey scheme

Information on the harvest of non-waterfowl is derived from the National Migratory Game Bird Harvest Survey. There is no separate survey for non-waterfowl, and in this report we shall not be dealing with the harvest of rails or gallinules. Not all the species included in this report are available nationally. For example, there are legal seasons for Woodcock in Prince Edward Island, Nova Scotia, New Brunswick, Quebec and Ontario; and for Sandhill Cranes in restricted parts of Manitoba and Saskatchewan. The hunting of Band-tailed Pigeons and Mourning Doves is confined to certain parts of British Columbia. Only Snipe and Coots are available as legal non-waterfowl game species throughout Canada. (The legal status of different species does not always bear a close relationship to their distribution in different parts of the country.)

The estimate of active hunters of non-waterfowl is derived from question 8 of the Harvest Survey questionnaire which asks how many days were spent hunting waterfowl (ducks and geese) and how many were spent hunting species other than waterfowl, but this question gives no means of estimating the number of active hunters by species within the non-waterfowl category. Successful hunters are determined by answers to question 9 of the questionnaire which asks for the kill per species group. Consequently there is no way at present of calculating the number of people who hunted a particular species group and who were not successful. Data exist only for the number of hunters who were successful in killing and retrieving one or more of a particular species group other than waterfowl.

Since the Harvest Survey is designed to yield figures on the harvest of waterfowl, the numbers and method of distribution of questionnaires are based on that requirement. Consequently the results for non-waterfowl are based on a much smaller sample and subsequent response. For example, the estimates of national totals of the harvest of ducks are based on returns by 12 980 active hunters and 11 740 successful hunters, whereas for Mourning Doves (the most extreme ex-

ample) only 13 respondents reported killing at least one. Under such a sampling scheme the standard error associated with the final estimate of total harvest will normally be very great and the estimate is very likely to be biased. Standard errors have been computed for migratory game birds other than waterfowl for results of the 1975-76 survey and are of the order of $\pm 25\%$ at the 90% confidence level, compared to national standard errors of $\pm 2\%$ for ducks and $\pm 9\%$ for geese.

Results

Table 1 is basically a summary of national totals by species for the period 1969-75 inclusive. The numbers in parentheses for 1972 through 1975 are the samples available nationally on which the estimates for those years are based.

Tables 2-7 give the estimate of retrieved kill, numbers of successful hunters and average kill per successful hunter, by species, province and zone.

The decline in estimated kill of Mourning Doves and Band-tailed Pigeons in British Columbia over the period 1969-75 inclusive is significant, with $r = -0.616$ and -0.944 respectively, despite the very small sample sizes referred to above.

The kill of Coots calculated on a national basis for the period 1969-74 shows a significant drop ($r = -0.608$). In this species, however, the decline has been generally restricted to Ontario and Quebec, the kill in western Canada having been relatively stable. Most of the increase in 1975 came from Zone 2 of Alberta and Zone 3 of Ontario. The harvest of this relatively abundant species continues to be very low in relation to the numbers available. This may be due to their reputation for being unpalatable.

The kill of Snipe and Woodcock has not varied more than 14% from 1969 to 1975 (if one excludes 1970 when all of New Brunswick was closed to Woodcock hunting and 1971 when part of that province was closed, because of high DDT levels). The estimate of the Snipe harvest is undoubtedly too high.

A special snipe wing survey conducted by John Dobell, CWS, Fredericton, in 1974 and 1975 in cooperation with the CWS, Ottawa, indicates that up to 25% of the reported take is actually from shorebird species other than snipe. Details of the snipe survey will be published elsewhere (Dobell and Cooch, in press). The special survey shows that the estimate from the national survey is inflated by the inclusion of protected species.

The harvest of Sandhill Cranes in 1975 was estimated from the National Harvest Survey to be 6164, the second highest recorded to date. However, because of a need for more precise data, Special Sandhill Crane Harvest Surveys were conducted in Saskatchewan in 1974 and 1975 in addition to the National Surveys. The results were illuminating. Whereas the 1975 National Survey yielded an estimated

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6000 ± 3439 Sandhill Cranes harvested in Saskatchewan, at a 90% confidence level, the special survey yielded 2989 ± 285 birds harvested, at a 95% confidence level. The difference in results obtained from the two surveys can be attributed almost entirely to differences in sampling intensity. In the National Survey, which is the basis of this Progress Note, extrapolation factors (from sample to universe) vary according to subsample, from 28.435 to 73.304. Both the National and Special Surveys received a response from a single hunter who reported killing 24 Sandhill Cranes. In the National Survey this value was extrapolated to represent 1312 cranes, whereas in the Special Survey, with an extrapolation factor of only 2.38, the estimate was 57. Where there is a wide range in individual reports and a highly skewed distribution of reported kill by individuals, small samples often produce, by chance, biased results or estimates with large standard errors.

Table 8 provides an estimate of the number of man-days of recreation enjoyed by Canadian hunters in pursuit of non-waterfowl. Because hunters may take birds of more than one species category, no precise estimate of the number of persons hunting these migratory game birds is available. Our best estimates are that in 1975-76 no more than 72 000 hunters were active, 44 000 were successful, and that they harvested 296 000 birds. This represents 15.4% of potential migratory bird hunters. An alternative way of describing their activities is to say that about one-sixth of all active migratory game bird hunters spent at least part of one day hunting species other than waterfowl.

Table 1
National totals of harvest of migratory game birds other than waterfowl. Numbers of successful hunters sampled hunters are in parentheses

Species	1969	1970	1971	1972	1973	1974	1975	1969-74 (average)
Coot	60 955	67 316	61 345	27 471 (199)	42 294 (223)	48 931 (249)	53 407 (327)	51 385
Woodcock	116 686	97 768*	108 061†	121 824 (458)	108 897 (430)	113 297 (448)	130 898 (623)	111 089
Snipe	93 655	102 500	112 129	98 109 (558)	86 242 (480)	107 420 (568)	97 998 (664)	100 000
Crane	4 444	5 344	2 943	2 143 (26)	4 275 (22)	6 699 (29)	6 165 (58)	4 308
Doves	3 807	3 738	3 789	5 133 (17)	1 156 (5)	1 593 (6)	2 348 (13)	3 203
Pigeons	11 437	11 375	9 094	9 458 (26)	8 211 (15)	5 822 (15)	5 197 (38)	9 243
Total harvest	290 984	288 041	297 361	264 138	251 075	283 762	296 013	279 227

*Season closed in New Brunswick.

†Season closed in part of New Brunswick.

Table 2
Harvest of Woodcock

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
PEI	01	36	129	208	60	559	389	1.65	4.31	1.87
NS	01	443	682	692	1 669	2 933	7 176	3.76	4.50	10.36
	02	588	584	52 588	3 569	5 595	3 669	6.07	9.57	6.23
	Total	1 032	1 236	1 281	5 238	8 528	10 845	5.08	6.90	8.46
NB	01	1 027	936	940	10 328	10 134	8 590	10.05	10.82	9.13
	02	223	476	310	1 619	3 974	5 683	7.25	8.33	18.28
	Total	1 250	1 413	1 251	11 947	14 109	14 274	9.55	9.98	11.41
Que.	01	5 499	4 642	4 636	30 345	23 956	35 690	5.52	5.16	7.70
	02	773	673	864	3 406	5 137	4 231	4.41	7.63	4.90
	Total	6 272	5 315	5 500	33 751	29 094	39 921	5.38	5.47	7.26
Ont.	01	4 797	4 703	4 590	25 486	30 168	35 721	5.31	6.41	7.78
	02	5 292	4 240	5 765	27 283	24 776	22 344	5.16	5.84	3.88
	03	1 031	1 006	1 798	5 130	6 063	7 402	4.97	6.02	4.12
	Total	11 121	9 950	12 155	57 901	61 007	65 469	5.21	6.13	5.39
Canada	Total	19 711	18 043	20 395	108 897	113 297	130 898	5.52	6.28	6.42

Table 3
Harvest of Common Snipe

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
Nfld.	01	3 479	3 290	3 410	17 379	15 633	17 351	4.99	4.75	5.09
	02	211	165	213	1 243	1 839	612	5.82	11.12	2.87
	Total	3 691	3 456	3 623	18 610	17 472	17 964	5.04	5.06	4.96
PEI	01	234	254	314	905	940	2 070	3.86	3.70	6.59
NS	01	450	656	496	1 980	4 018	3 374	4.40	6.12	6.80
	02	670	813	797	2 977	5 002	4 624	4.44	6.15	5.80
	Total	1 120	1 469	1 293	4 957	9 021	7 998	4.42	6.14	6.18
NB	01	517	355	291	2 489	1 762	1 106	4.81	4.96	3.80
	02	121	200	191	837	877	1 382	6.92	4.38	7.23
	Total	638	555	482	3 326	2 639	2 488	5.21	4.75	5.16
Que.	01	4 991	6 283	4 991	31 146	40 649	31 091	6.24	6.47	6.23
	02	1 149	1 014	1 027	6 889	5 977	7 752	5.99	5.89	7.55
	Total	6 140	7 298	6 018	38 035	46 626	38 843	6.19	6.39	6.45
Ont.	01	904	970	705	2 140	3 358	2 170	2.37	3.46	3.08
	02	1 343	2 643	1 322	2 968	9 430	6 218	2.21	3.57	4.70
	03	398	481	514	932	1 310	2 649	2.34	2.72	5.15
	Total	2 645	4 095	2 542	6 040	14 099	11 038	2.28	3.44	4.34
Man.	01	308	381	472	748	1 619	1 910	2.42	4.25	4.04
	02	230	216	184	1 357	2 389	1 179	5.88	11.03	6.38
	Total	539	597	657	2 105	4 008	3 089	3.90	6.71	4.70
Sask.	01	406	199	181	1 518	1 278	559	3.73	6.41	3.09
	02	164	57	112	327	86	660	1.98	1.50	5.89
	03	434	75	269	1 272	453	1 822	2.93	6.00	6.76
	Total	1 006	332	562	3 118	1 819	3 042	3.10	5.46	5.41
Alta.	01	439	659	351	1 778	3 811	1 327	4.05	5.78	3.78
	02	605	937	658	3 094	4 292	3 485	5.11	4.58	5.29
	Total	1 044	1 597	1 009	4 873	8 103	4 813	4.66	5.07	4.77
BC	01	148	169	300	579	1 015	1 413	3.89	6.01	4.70
	02	675	438	495	3 693	1 678	5 203	5.47	3.83	10.49
	Total	824	607	796	4 273	2 693	6 617	5.18	4.43	8.31
Yukon	01	-	-	29	-	-	31	-	-	1.06
Canada	Total	17 881	20 260	17 325	86 242	107 420	97 993	4.82	5.30	5.66

Table 4
Harvest of Coots

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
Que.	01	2 307	1 731	1 815	10 799	3 988	5 330	4.68	2.30	2.94
	02	261	482	122	918	2 309	294	3.52	4.78	2.40
	Total	2 568	2 214	1 938	11 718	6 298	5 624	4.56	2.84	2.90
Ont.	01	1 282	1 601	1 301	5 858	4 409	5 630	4.57	2.75	4.32
	02	1 260	1 225	1 431	2 807	4 935	5 323	2.23	4.03	3.72
	03	674	419	937	3 080	2 678	5 602	4.57	6.39	5.98
	Total	3 217	3 245	3 670	11 746	12 022	16 556	3.64	3.70	4.51
Man.	01	417	951	1 049	1 426	8 350	4 166	3.42	3.52	3.97
	02	150	198	226	811	1 306	1 551	5.39	6.57	6.84
	Total	567	1 150	1 276	2 238	4 656	5 717	3.94	4.05	4.70
Sask.	01	571	764	925	2 091	384	5 443	3.66	5.04	5.88
	02	507	448	487	3 278	3 216	2 752	6.46	7.17	5.65
	03	428	941	731	807	10 719	7 617	1.89	11.39	10.41
	Total	1 507	2 154	2 144	6 177	17 785	15 812	4.10	8.26	7.37
Alta.	01	947	797	606	2 927	2 614	3 835	3.09	3.28	6.33
	02	1 019	718	756	5 145	2 861	5 000	5.05	3.98	6.61
	Total	1 966	1 516	1 362	8 073	5 476	8 835	4.11	3.61	6.48
BC	01	338	122	137	2 076	391	258	6.14	3.19	1.88
	02	85	377	141	266	2 300	603	3.13	6.10	4.28
	Total	423	499	278	2 342	2 691	861	5.53	5.39	3.09
Canada	Total	10 248	10 778	10 668	42 294	48 931	53 405	4.13	4.48	5.01

Table 5
Harvest of Sandhill Cranes

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
Man.	01	56	58	126	683	58	164	12.00	1.00	1.30
Sask.	01	192	231	419	1649	918	1045	8.59	3.97	2.49
	02	63	50	—	63	151	—	1.00	3.00	—
	03	654	900	1198	1878	5571	4955	2.87	6.19	4.28
	Total	909	1181	1578	3592	6641	6000	3.95	5.62	3.80
Total	965	1239	1704	4275	6699	6164	4.43	5.41	3.62	

Table 6
Harvest of Mourning Doves

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
BC	01	79	106	217	237	943	546	3.00	8.89	2.51
	02	213	86	118	919	649	1 801	4.30	7.55	15.19
	Total	292	192	336	1156	1593	2348	3.95	8.29	6.99

Table 7
Harvest of Bandtailed Pigeons

Province	Survey stratum	Successful hunters			Birds harvested			Birds per hunter		
		1973	1974	1975	1973	1974	1975	1973	1974	1975
BC	01	34	164	94	34	492	412	1.00	2.99	4.35
	02	727	574	660	8176	5329	4784	11.23	9.27	7.24
	Total	762	739	755	8211	5822	5197	10.77	7.87	6.88

Table 8
Recreation activity provided by the hunting of non-waterfowl, 1975

Province	Survey stratum	Sales	Active hunters	Successful hunters	Harvest	Recreation days	S.bag*	D.bag	R.days
Nfld.	1	27 207	5 566	3 410	17 351	47 927	3.1	0.4	8.6
	2	2 908	479	213	612	2 464	1.3	0.2	5.1
	Total	30 115	6 045	3 623	17 963	50 391	3.0	0.4	8.3
PEI	Total	4 963	783	408	2 460	5 293	3.1	0.5	6.8
NS	1	8 349	2 550	921	10 550	22 143	4.1	0.5	8.7
	2	5 641	1 677	1 070	8 293	11 363	4.9	0.7	6.8
	Total	13 990	4 227	1 991	18 843	33 506	4.5	0.6	7.9
NB	1	8 896	1 673	1 119	9 697	8 386	5.8	1.2	5.0
	2	4 034	869	436	7 065	8 741	8.1	0.8	10.1
	Total	12 930	2 542	1 555	16 762	17 127	6.6	1.0	6.7
Que.	1	50 002	10 983	8 777	72 112	65 854	6.6	1.1	6.0
	2	13 766	2 511	1 704	12 277	18 183	4.9	0.7	7.2
	Total	63 768	13 494	10 481	84 389	84 037	6.3	1.0	6.2
Ont.	1	42 077	7 881	5 641	43 523	50 375	5.5	0.9	6.4
	2	77 914	13 188	7 482	33 886	63 170	2.6	0.5	4.8
	3	28 679	4 157	2 790	15 654	22 409	3.8	0.7	5.4
	Total	148 670	25 226	15 913	93 063	135 954	3.7	0.7	5.4
Man.	1	35 266	3 090	1 470	6 192	12 868	2.0	0.5	4.2
	2	7 580	1 100	405	2 779	5 788	2.5	0.5	5.3
	Total	42 846	4 190	1 875	8 971	18 656	2.1	0.5	4.5
Sask.	1	22 920	2 990	1 362	7 048	9 534	2.4	0.7	3.2
	2	10 040	1 014	568	3 412	3 959	3.4	0.9	3.9
	3	24 763	3 141	1 889	14 395	12 585	4.6	1.1	4.0
	Total	57 723	7 145	3 819	24 855	26 078	3.5	1.0	3.6
Alta.	1	28 334	2 841	886	5 163	9 514	1.8	0.5	3.3
	2	40 857	3 103	1 203	8 485	14 980	2.7	0.6	4.8
	Total	69 191	5 944	2 089	13 648	24 494	2.3	0.6	4.1
BC	1	11 565	1 241	700	2 631	6 442	2.1	0.4	5.2
	2	14 353	1 641	1 162	12 393	7 018	7.6	1.8	4.3
	Total	25,918	2 882	1 862	15 024	13 460	5.2	1.1	4.7
NWT		721	143			2 001			14.0
Yukon		485	63	29	31	297	0.5	0.1	4.7
Total		471 320	72 684	43 645	296 009	411 294	4.1	0.7	5.7

*S.bag, season bag per active hunter; D.bag, daily bag per active hunter; R.days, recreation days per active hunter.

