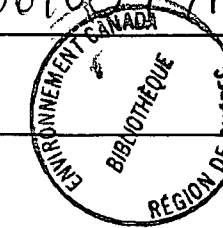




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CANADA WILDLIFE SERVICE



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**The 1976 kill of migratory game birds other than waterfowl by hunters in Canada**by F.G. Cooch,<sup>1</sup> K. Newell,<sup>1</sup> S. Wendt<sup>1</sup>**Introduction**

The kill of migratory game birds by hunters in Canada is estimated from the National Harvest Survey. On the average a 7% sample is drawn from 450 000 migratory game bird hunting permits according to 23 geographic zones across Canada. Mail questionnaires returned for use in the Harvest Survey represent approximately 4% of the licensed hunters in that year.

Information is requested in the survey on hunting activity associated with all migratory game birds. Increasing hunter interest in species other than waterfowl makes it useful to report separately on the estimated annual kill and amount of recreation afforded hunters by these species.

**Methods**

The non-waterfowl category in the National Harvest Survey includes American Woodcock, Common Snipe, American Coot, Sandhill Crane, Mourning Dove and Band-tailed Pigeon.

The number of hunters who indicate on their Harvest Survey questionnaire that they hunted non-waterfowl at least one day is used to estimate the total number of active hunters of non-waterfowl. The present survey design does not provide any means of estimating the number of active hunters of each non-waterfowl species. The number of successful hunters can be determined by species, however, from the questionnaire, as each hunter is asked for the number that he shot of each species.

The Harvest Survey is designed primarily to estimate the harvest of waterfowl, and the numbers and method of distribution of questionnaires are not necessarily those that would be selected for a non-waterfowl survey. Consequently, there is a considerably smaller sample of hunters responding to the questions about non-waterfowl than to the portion of the questionnaire dealing with waterfowl. Under such a sampling scheme the standard errors associated with the estimates of harvest will normally be large and the estimates likely biased. The 90% confidence intervals computed for the 1976 harvest estimates for non-waterfowl are American Woodcock  $\pm 13.2\%$ , Common Snipe  $\pm 12.0\%$ , American Coot  $\pm 15.5\%$ , Sandhill Crane  $\pm 39.4\%$ , Mourning Dove  $\pm 51.6\%$  and Band-tailed Pigeon  $\pm 51.5\%$ . Comparable confidence limits for national harvest estimates of ducks and geese are  $\pm 2.5$  and  $\pm 4.5\%$  respectively.

**Results**

Table 1 is a summary of national totals by species for the period 1972-76 inclusive. Tables 2-7 give the estimates of retrieved kill, numbers of successful hunters and average kill per successful hunter, by species, province and zone. Sample sizes from which the estimates were made and the percent sampled of the total estimate are also given.

Table 8 provides an estimate of the number of recreation days spent by Canadian hunters in pursuit of non-waterfowl. On a national basis the results of the 1976 season are as follows: 76 000 hunters were active, 45 000 were successful, and they harvested 325 000 birds. Active non-waterfowl hunters represented 15.7% of potential migratory game bird hunters, and shot 6.4% of the migratory game birds killed in Canada in that season. The number of persons hunting non-waterfowl increased by 4.6% in 1976 when compared with 1975 and the kill increased by 9.4%.

From 1972 to 1976 the total kill of non-waterfowl and waterfowl has increased 24.9 and 21.6%, respectively; while recreation days for non-waterfowl and waterfowl have increased by 20.3 and 15.9%, respectively. In terms of both kill and recreation, the use made of non-waterfowl is increasing in magnitude faster than that made of waterfowl.

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The work of R. Baroni, L. Teevens and S. Quinn in mailing and editing the Harvest Survey questionnaires and of the Production Division, Computing and Applied Statistics Directorate was essential in providing the information included in this publication.

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**Table 1**  
Estimated retrieved kill of migratory game birds other than waterfowl in Canada, 1972-76

Species	1972	1973	1974	1975	1976	1972-76 average
American Woodcock	121 824	108 897	113 297	130 898	159 094	126 802
Common Snipe	92 002	86 242	107 420	97 998	106 972	98 127
American Coot	27 734	42 294	48 931	53 407	47 980	44 069
Sandhill Crane	2 143	4 275	6 699	6 165	1 636	4 184
Mourning Dove	5 133	1 156	1 593	2 348	3 700	2 786
Band-tailed Pigeon	9 458	8 211	5 822	5 197	3 286	6 395
<b>Total</b>	<b>258 294</b>	<b>251 075</b>	<b>283 762</b>	<b>296 013</b>	<b>322 668</b>	<b>282 362</b>

**Table 2**  
Estimated number of successful hunters of Woodcock and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
PEI	01	129	208	262	559	389	1 022	4.3	1.9	3.9
NS	01	682	692	620	2 933	7 176	7 591	4.5	10.4	12.2
	02	584	588	473	5 595	3 669	5 539	9.6	6.2	11.7
	<b>Total</b>	<b>1 236</b>	<b>1 281</b>	<b>1 093</b>	<b>8 528</b>	<b>10 845</b>	<b>13 130</b>	<b>6.9</b>	<b>8.5</b>	<b>12.0</b>
NB	01	936	940	1 048	10 134	8 590	9 811	10.8	9.1	9.4
	02	476	310	449	3 974	5 683	4 221	8.3	18.3	9.4
	<b>Total</b>	<b>1 413</b>	<b>1 251</b>	<b>1 498</b>	<b>14 109</b>	<b>14 274</b>	<b>14 032</b>	<b>10.0</b>	<b>11.4</b>	<b>9.4</b>
Que.	01	4 642	4 636	6 032	23 956	35 690	48 459	5.2	7.7	8.0
	02	673	864	1 001	5 137	4 231	7 653	7.6	4.9	7.7
	<b>Total</b>	<b>5 315</b>	<b>5 500</b>	<b>7 033</b>	<b>29 094</b>	<b>39 921</b>	<b>56 113</b>	<b>5.5</b>	<b>7.3</b>	<b>8.0</b>
Ont.	01	4 703	4 590	3 845	30 168	35 721	22 919	6.4	7.8	6.0
	02	4 240	5 765	7 165	24 776	22 344	45 662	5.8	3.9	6.4
	03	1 006	1 798	1 410	6 063	7 402	6 216	6.0	4.1	4.4
	<b>Total</b>	<b>9 950</b>	<b>12 155</b>	<b>12 420</b>	<b>61 007</b>	<b>65 469</b>	<b>74 798</b>	<b>6.1</b>	<b>5.4</b>	<b>6.0</b>
Canada	<b>Total</b>	<b>18 043</b>	<b>20 395</b>	<b>22 306</b>	<b>113 297</b>	<b>130 898</b>	<b>159 094</b>	<b>6.3</b>	<b>6.4</b>	<b>7.1</b>
No. sampled		448	623	731						
% sampled		2.48	3.05	3.28						

**Table 3**  
Estimated number of successful hunters of Common Snipe and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
Nfld.	01	3 290	3 410	3 070	15 633	17 351	17 627	4.8	5.1	5.7
	02	165	213	129	1 839	612	504	11.1	2.9	3.9
	<b>Total</b>	<b>3 456</b>	<b>3 623</b>	<b>3 200</b>	<b>17 472</b>	<b>17 964</b>	<b>18 131</b>	<b>5.1</b>	<b>5.0</b>	<b>5.7</b>
PEI	01	254	314	227	940	2 070	808	3.7	6.6	3.6
NS	01	656	496	560	4 018	3 374	2 442	6.1	6.8	4.4
	02	813	797	530	5 002	4 624	3 330	6.2	5.8	6.3
	<b>Total</b>	<b>1 469</b>	<b>1 293</b>	<b>1 090</b>	<b>9 021</b>	<b>7 998</b>	<b>5 772</b>	<b>6.1</b>	<b>6.2</b>	<b>5.3</b>
NB	01	355	291	292	1 762	1 106	798	5.0	3.8	2.7
	02	200	191	190	877	1 382	1 202	4.4	7.2	6.3
	<b>Total</b>	<b>555</b>	<b>482</b>	<b>482</b>	<b>2 639</b>	<b>2 488</b>	<b>2 000</b>	<b>4.8</b>	<b>5.2</b>	<b>4.2</b>
Que.	01	6 283	4 991	4 685	40 649	31 091	33 884	6.5	6.2	7.2
	02	1 014	1 027	1 601	5 977	7 752	13 414	5.9	7.6	8.4
	<b>Total</b>	<b>7 298</b>	<b>6 018</b>	<b>6 287</b>	<b>46 626</b>	<b>38 843</b>	<b>47 299</b>	<b>6.4</b>	<b>6.5</b>	<b>7.5</b>
Ont.	01	970	705	871	3 358	2 170	4 141	3.5	3.1	4.8
	02	2 643	1 322	2 621	9 430	6 218	9 110	3.6	4.7	3.5
	03	481	514	625	1 310	2 649	2 217	2.7	5.2	3.5
	<b>Total</b>	<b>4 095</b>	<b>2 542</b>	<b>4 118</b>	<b>14 099</b>	<b>11 038</b>	<b>15 468</b>	<b>3.4</b>	<b>4.3</b>	<b>3.8</b>
Man.	01	381	472	508	1 619	1 910	1 561	4.3	4.0	3.1
	02	216	184	98	2 389	1 179	413	11.0	6.4	4.2
	<b>Total</b>	<b>597</b>	<b>657</b>	<b>601</b>	<b>4 008</b>	<b>3 089</b>	<b>1 975</b>	<b>6.7</b>	<b>4.7</b>	<b>3.3</b>
Sask.	01	199	181	422	1 278	599	1 281	6.4	3.1	3.0
	02	57	112	144	86	660	536	1.5	5.9	3.7
	03	75	269	274	453	1 822	911	6.0	6.8	3.3
	<b>Total</b>	<b>332</b>	<b>562</b>	<b>842</b>	<b>1 819</b>	<b>3 042</b>	<b>2 728</b>	<b>5.5</b>	<b>5.4</b>	<b>3.2</b>
Alta.	01	659	351	397	3 811	1 327	1 532	5.8	3.8	3.9
	02	937	658	1 061	4 291	3 485	7 121	4.6	5.3	6.7
	<b>Total</b>	<b>1 597</b>	<b>1 009</b>	<b>1 458</b>	<b>8 103</b>	<b>4 813</b>	<b>8 653</b>	<b>5.1</b>	<b>4.8</b>	<b>5.9</b>
BC	01	169	300	130	1 015	1 413	484	6.0	4.7	3.7
	02	438	495	549	1 678	5 203	3 552	3.8	10.5	6.5
	<b>Total</b>	<b>607</b>	<b>796</b>	<b>680</b>	<b>2 693</b>	<b>6 617</b>	<b>4 036</b>	<b>4.4</b>	<b>8.3</b>	<b>5.9</b>
Canada	<b>Total*</b>	<b>20 270</b>	<b>17 331</b>	<b>18 995</b>	<b>107 438</b>	<b>97 998</b>	<b>106 977</b>	<b>5.3</b>	<b>5.7</b>	<b>5.6</b>
No. sampled		568	664	647						
% sampled		2.80	3.83	3.41						

\* Total includes small sample of Common Snipe kill and successful hunters in Yukon and NWT.

**Table 4**  
Estimated number of successful hunters of American Coot  
and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/ successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
Que.	01	1 731	1 815	1 524	3 988	5 330	4 731	2.3	2.9	3.1
	02	482	122	361	2 309	294	2 208	4.8	2.4	6.1
	Total	2 214	1 938	1 886	6 298	5 624	6 940	2.8	2.9	3.7
Ont.	01	1 601	1 301	729	4 409	5 630	2 176	2.8	4.3	3.0
	02	1 225	1 431	1 991	4 935	5 323	5 333	4.0	3.7	2.7
	03	419	937	1 009	2 678	5 602	5 177	6.4	6.0	5.1
	Total	3 245	3 670	3 730	12 022	16 556	12 686	3.7	4.5	3.4
Man.	01	951	1 049	892	3 350	4 166	4 021	3.5	4.0	4.5
	02	198	226	111	1 306	1 551	277	6.6	6.8	2.5
	Total	1 150	1 276	1 004	4 656	5 717	4 299	4.1	4.5	4.3
Sask.	01	764	925	670	3 849	5 443	4 769	5.0	5.9	7.1
	02	448	487	382	3 216	2 752	2 314	7.2	5.7	6.1
	03	941	731	599	10 719	7 617	3 670	11.4	10.4	6.1
	Total	2 154	2 144	1 652	17 785	15 812	10 755	8.3	7.4	6.5
Alta.	01	797	606	462	2 614	3 835	1 083	3.3	6.3	2.3
	02	718	756	1 495	2 861	5 000	9 658	4.0	6.6	6.5
	Total	1 516	1 362	1 957	5 476	8 835	10 742	3.6	6.5	5.5
BC	01	122	137	167	391	258	1 158	3.2	1.9	6.9
	02	377	141	286	2 300	603	1 399	6.1	4.3	4.9
	Total	499	278	453	2 691	861	2 558	5.4	3.1	5.6
Canada	Total	10 780	10 671	10 686	48 931	53 407	47 980	4.5	5.0	4.5
No. sampled		249	327	288						
% sampled		2.31	3.06	2.70						

**Table 5**  
Estimated number of successful hunters of Sandhill Crane  
and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/ successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
Man.	Total	59	126	119	59	164	210	1.0	1.3	1.8
Sask.	01	231	419	121	918	1 045	270	4.0	2.5	2.2
	02	50	-	53	151	-	53	3.0	-	1.0
	03	900	1 158	437	5 571	4 955	1 102	6.2	4.3	2.5
	Total	1 181	1 578	612	6 641	6 000	1 426	5.6	3.8	2.3
	Total	1 284	1 704	731	6 787	6 165	1 636	5.3	3.6	2.2
No. sampled		29	58	25						
% sampled		2.26	3.40	3.42						

**Table 6**  
Estimated number of successful hunters of Mourning Dove  
and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/ successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
BC	01	106	217	106	943	546	903	8.9	2.5	8.5
	02	86	118	210	649	1 801	2 797	7.6	15.2	13.3
	Total	192	336	316	1 593	2 348	3 700	8.3	7.0	11.7
No. sampled		6	13	16						
% sampled		3.13	3.87	5.06						

**Table 7**  
Estimated number of successful hunters of Band-tailed Pigeon  
and of their retrieved kill, 1974-76

Area	Survey stratum	Successful hunters			Birds killed			Average kill/ successful hunter		
		1974	1975	1976	1974	1975	1976	1974	1975	1976
BC	01	164	94	18	492	412	74	3.0	4.4	4.0
	02	574	660	527	5 329	4 784	3 212	9.3	7.2	6.1
	Total	739	755	545	5 822	5 197	3 286	7.9	6.9	6.0
No. sampled		15	35	20						
% sampled		2.03	4.64	3.67						

**Table 8**  
Estimated recreation activity provided by the hunting of  
non-waterfowl in 1976\*

Area	Survey stratum	Total permit sales†	Active hunters	Successful hunters	Retrieved kill	Recreation days	S. bag (ave.)	D. bag (ave.)	R. day (ave.)
Nfld.	1	27 227	5 260	3 070	17 627	45 729	3.4	0.4	8.7
	2	2 394	411	129	504	3 409	1.2	0.1	8.3
	Total	29 621	5 671	3 199	18 131	49 138	3.2	0.4	8.7
PEI	Total	5 756	885	399	1 831	2 803	2.1	0.7	3.2
NS	1	8 112	2 687	941	10 033	21 017	3.7	0.5	7.8
	2	5 214	1 347	816	8 868	8 331	6.6	1.1	6.2
	Total	13 326	4 034	1 757	18 901	29 348	4.7	0.6	7.3
NB	1	9 411	2 008	1 201	10 609	12 211	5.3	0.9	6.1
	2	4 332	1 007	572	5 423	7 828	5.4	0.7	7.8
	Total	13 743	3 015	1 773	16 032	20 039	5.3	0.8	6.6
Que.	1	52 090	12 335	9 715	87 076	85 237	7.1	1.0	6.9
	2	14 363	3 122	2 197	23 358	20 200	7.5	1.2	6.5
	Total	66 453	15 457	11 912	110 434	105 437	7.1	1.0	6.8
Ont.	1	41 441	6 827	4 595	29 236	46 075	4.3	0.6	6.7
	2	77 109	15 240	9 820	60 105	73 159	3.9	0.8	4.8
	3	25 266	3 827	2 541	13 611	25 316	3.6	0.5	6.6
	Total	143 816	25 894	16 956	102 952	144 550	4.0	0.7	5.6
Man.	1	38 355	3 602	1 325	5 758	14 919	1.6	0.4	4.1
	2	8 326	1 256	210	726	6 392	0.6	0.1	5.1
	Total	46 681	4 858	1 535	6 484	21 311	1.3	0.3	4.4
Sask.	1	23 986	2 414	1 004	6 606	10 926	2.7	0.6	4.5
	2	10 967	1 083	534	2 904	6 477	2.7	0.4	6.0
	3	26 716	2 981	1 140	5 684	9 693	1.9	0.6	3.3
	Total	61 669	6 478	2 678	15 194	27 096	2.3	0.6	4.2
Alta.	1	30 920	2 516	737	2 615	8 876	1.0	0.3	3.5
	2	44 819	4 267	2 244	17 389	21 993	4.1	0.8	5.2
	Total	75 739	6 783	2 981	20 004	30 869	2.9	0.6	4.6
BC	1	12 257	850	348	2 620	6 483	3.1	0.4	7.6
	2	14 304	1 884	1 424	10 960	10 825	5.8	1.0	5.7
	Total	26 561	2 734	1 772	13 580	17 308	5.0	0.8	6.3
NWT	Total	893	155	2	75	567	0.5	0.1	3.7
Yukon	Total	513	53	11	172	541	3.2	0.3	10.2
	Total	484 771	76 017	44 975	323 790	449 007	4.3	0.7	5.9

\*S. bag, seasonal bag per average hunter; D. bag, daily bag per average hunter; R. days, recreation days per average hunter.

†Migratory game bird hunting permits.