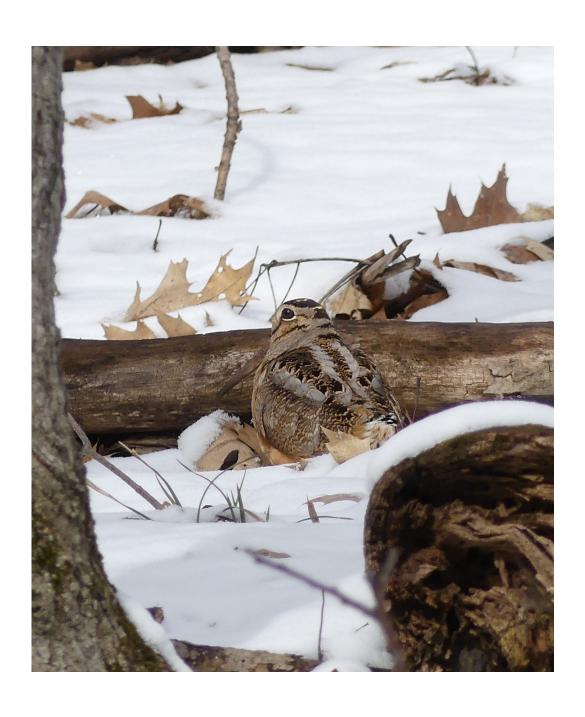


American Woodcock

Population Status, 2020



American Woodcock Population Status, 2020

U.S. Fish and Wildlife Service Division of Migratory Bird Management Branch of Assessment and Decision Support 11510 American Holly Drive Laurel, MD 20708-4002

August 2020

Cover photograph: American woodcock, Richmondville, New York. Photo by Roger Masse.

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AMERICAN WOODCOCK POPULATION STATUS, 2020

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Abstract: The 2019 recruitment index for the U.S. portion of the Eastern Region (1.51 immatures per adult female) was 12% less than the 2018 index, and 7.0% less than the long-term regional average, while the recruitment index for the U.S. portion of the Central Region (1.40 immatures per adult female) was the same as the 2018 index but was 7.8% less than the long-term regional average. Estimates from the Harvest Information Program indicated that U.S. woodcock hunters in the Eastern Region spent 101,200 days afield and harvested 35,300 woodcock during the 2019–20 season, while in the Central Region hunters spent 216,600 days afield and harvested 136,000 woodcock. Due to SARS-CoV-2 (i.e., coronavirus) related restrictions in Canada and the U.S. only a small portion of Singing-ground Survey routes were surveyed in 2020. The small and spatially uneven sample was not thought to be a representative sample, therefore no results from the 2020 survey are presented in this report.

INTRODUCTION

The American woodcock (Scolopax minor) is a popular game bird throughout eastern North America. The management objective of the U.S. Fish and Wildlife Service (FWS) is to stabilize woodcock populations, while ultimately returning the population to a level that occurred in the early 1970s (Kelley et al. 2008). Reliable annual population estimates, harvest estimates, and information on recruitment and distribution are essential for comprehensive woodcock management. Unfortunately, this information is difficult and often impractical to obtain. Woodcock are difficult to find and count because of their cryptic coloration, small size, and preference for areas with dense vegetation. The Singing-ground Survey (SGS) was developed to provide indices to changes in abundance. The Wing-collection Survey (WCS) provides annual indices of woodcock recruitment. The Harvest Information Program (HIP) utilizes a sampling frame of woodcock hunters to estimate harvest and hunter days spent afield.

This report summarizes the results of these surveys and presents an assessment of the population status of woodcock as of early June 2020. The report is intended to assist managers in regulating the sport harvest of woodcock and to draw attention to areas where management actions are needed. Historical woodcock hunting regulations are summarized in Appendix A.

The primary purpose of this report is to facilitate the prompt distribution of timely information. Results are preliminary and may change with the inclusion of additional data.

METHODS

Woodcock Management Regions

Woodcock are managed on the basis of two regions or populations, Eastern and Central, as recommended by Owen et al. (1977; Fig. 1). Coon et al. (1977) reviewed the concept of management units for woodcock and recommended the current configuration over several This configuration was biologically alternatives. justified because analysis of band recovery data indicated that there was little crossover between the regions (Krohn et al. 1974, Martin et al. 1969). Furthermore, the boundary between the two regions conforms to the boundary between the Atlantic and Mississippi Flyways. The results of the Wing-collection and Singing-ground Survey, as well as the Harvest Information Program, are reported by state or province, and management region. Although state and province level results are included in this report, analyses are designed to support management decisions made at the management region scale.

Singing-ground Survey

The annual results from the Singing-ground Survey inform harvest regulatory decisions. Due to SARS-CoV-2 (i.e., coronavirus) related restrictions in Canada and the U.S. only a small portion of routes were surveyed in 2020. It was determined that the small and spatially uneven sample was not a representative sample, therefore no results from the 2020 survey are presented herein. Results from previous years' surveys can be found in previous status reports available at: https://www.fws.gov/birds/surveys-and-data/reports-and-publications/population-status.php



Fig. 1. Woodcock management regions, breeding range, and Singing-ground Survey coverage.

Wing-collection Survey

The primary objective of the Wing-collection Survey is to provide data on the reproductive success of woodcock. The survey is administered as a cooperative effort between woodcock hunters, the FWS, and state wildlife agencies. Participants in the 2019 survey included hunters who either: (1) participated in past surveys; (2) were a subset of hunters that indicated on the Harvest Information Program Survey that they hunted woodcock; or (3) contacted the FWS to volunteer for the survey.

Wing-collection Survey participants were provided with prepaid mailing envelopes and asked to submit one wing from each woodcock they harvested. Hunters were asked to record the date of the hunt as well as the state and county where the bird was shot. Hunters were not asked to submit envelopes for unsuccessful hunts. The age and gender of birds were determined by examining plumage characteristics (Martin 1964, Sepik 1994) during the annual woodcock wingbee conducted by state, federal and private biologists.

The ratio of immature birds per adult female in the harvest provides an index to recruitment of young into the population. The 2019 recruitment index for each state with ≥ 125 submitted wings was calculated as the number of immatures per adult female. The regional indices for 2019 were weighted by the relative contribution of each state to the cumulative number of adult female and immature wings received during 1963–2018.

Harvest Information Program

The Harvest Information Program (HIP) was cooperatively developed by the FWS and state wildlife agencies to provide reliable annual estimates of hunter activity and harvest for all migratory game birds (Elden et al. 2002). The HIP sampling frame consists of all migratory game bird hunters. Under this program, state wildlife agencies collect the name, address, and additional information from each migratory bird hunter in their state, and send that information to the FWS. The FWS then selects stratified random samples of those hunters and asks them to voluntarily provide detailed information about their hunting activity. For example, hunters selected for the woodcock harvest survey are asked to complete a daily diary about their woodcock hunting and harvest during the current year's hunting Their responses are then used to develop nationwide woodcock harvest estimates. HIP survey estimates of woodcock harvest have been available since 1999. Although estimates from 1999-2002 have been finalized, the estimates from 2003-19 should be considered preliminary as refinements are still being made in the sampling frame and estimation techniques. Canadian hunter and harvest estimates for 2019 were not available for this report.

RESULTS AND DISCUSSION Singing-ground Survey

Data for 288 routes were submitted by 16 July 2020. For comparison, data for 860 routes were submitted in 2019.

Wing-collection Survey

A total of 840 woodcock hunters (Table 1) from states with a woodcock season sent in a total of 9,367 usable woodcock wings for the 2019 Wing-collection Survey (Table 2).

The 2019 recruitment index in the U.S. portion of the Eastern Region (1.51 immatures per adult female) was 12.0% less than the 2018 index of 1.71, and 7.0% less than the long-term (1963–18) regional average of 1.62 (Table 2, Fig 2). In the Central Region, the 2019 recruitment index (1.40 immatures per adult female) was the same as the 2018 index, but was 7.8% less than the long-term regional average of 1.52 (Table 2, Fig 2). Percent change for all comparisons was calculated using unrounded recruitment indices.

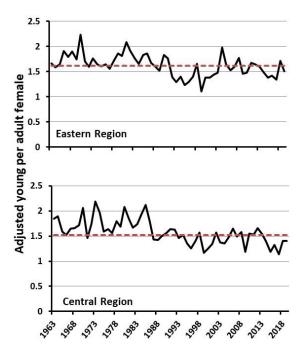


Fig. 2. Weighted annual indices of recruitment (U.S.), 1963–2018. The red dashed line is the 1963–2018 average.

Harvest Information Program

Estimates of woodcock harvest, number of active hunters, days afield, and seasonal hunting success from the 2019-20 HIP survey are provided in Table 3. In the Eastern Management Region, woodcock hunters spent an estimated 101,200 days afield (Figure 3) and harvested 35,300 birds (Figure 4) during the 2019-20 hunting season. In the Eastern Region, harvest in 2019– 20 was 54.5% less than the long-term (1999–2018) average (77,569 birds/year) and 28.8% less than last year (49,600 birds). Woodcock hunters in the Central Region spent an estimated 216,600 days afield (Figure 3) and harvested 136,000 birds (Figure 4) during the 2019–20 hunting season. In the Central Region, harvest in 2019-20 was 33.0% less than the long-term (1999-2018) average (202,895 birds/year) and 4.0% more than last year (130,600 birds).

Although HIP provides statewide estimates of woodcock hunter numbers, it is not possible to develop regional estimates due to the occurrence of some hunters being registered for HIP in more than one state. Therefore, regional estimates of seasonal hunting success rates cannot be determined on a per hunter basis. All estimates have been rounded to the nearest hundred.

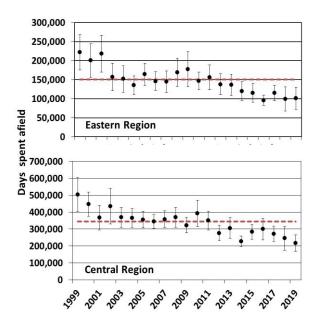


Fig. 3. Harvest Information Program Survey estimates of days spent afield by U.S. woodcock hunters, 1999–2019. The dashed line represents the 1999–2018 average and error bars represent the 95% confidence interval of the point estimate.

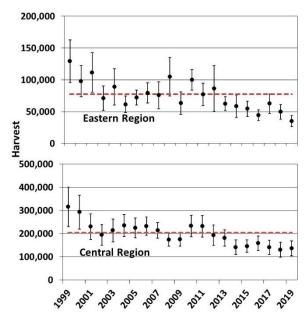


Fig. 4. Harvest Information Program Survey estimates of U.S. woodcock harvest, 1999–2019. The dashed line represents the 1999–2018 average and the error bars represent the 95% confidence interval of the point estimate.

Acknowledgements

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A special thanks to individuals who analyzed wings to collect age and gender data: J. Duguay (LA), A. Stewart (MI), L. Fendrick (OH), L. Shartell (MN), E. Johnson (retired MN), A. Weik, T. Edwards (retired FWS), D. McAuley (USGS) and R. Brown, T. Cooper, K. Daly, P. Denmon, A. Forbes, D. Fronczak, B. Rau, L. Stevenson, and K. Sturm (FWS).

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Table 1. The number of U.S. hunters by state that submitted woodcock wings for the 2018-19 and 2019-20 Wing-collection Surveys.

State of	Number of Hunters who submitted woodcock wings ^a					
residence	2018-19 Season	2019-20 Season				
Alabama	2	2				
Arkansas	2	3				
Connecticut	14	22				
Delaware	4	2				
Florida	0	2				
Georgia	4	5				
Illinois	0	14				
Indiana	12	16				
Iowa	4	4				
Kansas	0	1				
Kentucky	6	4				
Louisiana	11	7				
Maine	101	59				
Maryland	9	5				
Massachusetts	22	26				
Michigan	210	137				
Minnesota	100	109				
Mississippi	1	0				
Missouri	7	7				
Nebraska	0	2				
New Hampshire	49	43				
New Jersey	13	23				
New York	73	57				
North Carolina	8	15				
North Dakota	0	1				
Ohio	10	31				
Oklahoma	0	1				
Pennsylvania	48	42				
Rhode Island	6	8				
South Carolina	8	9				
Tennessee	4	4				
Texas	2	3				
Vermont	43	28				
Virginia	18	19				
West Virginia	14	5				
Wisconsin	181	124				
Total	986	840				

^a Number of hunters that submitted envelopes in current year. This number may include a small number of hunters that were sent envelopes in prior years and who subsequently submitted wings from birds shot in the current survey year. In addition, some hunters hunted and submitted wings from more than one state.

Table 2. Number of woodcock wings received from hunters, and indices of recruitment in the U.S. Recruitment indices for individual states with \geq 125 submitted wings were calculated as the ratio of immatures per adult female. The regional indices for 2019 were weighted by the relative contribution of each state to the cumulative number of adult female and immature wings received during 1963–2018.

State or			Wings red	ceived				
Region of	Total		Adult females		Immatures		Recruitment index	
harvest	1963-18	2019	1963-18	2019	1963-18	2019	1963-18	2019
Eastern Regi	ion							
CT	15,753	137	3,533	37	9,588	70	2.7	1.9
DE	543	9	85	1	371	8	4.4	
FL	678	0	153	0	422	0	2.8	
GA	3,428	23	1,076	11	1,453	10	1.4	
ME	92,021	767	27,232	233	45,908	394	1.7	1.7
MD	5,117	35	1,250	12	2,912	15	2.3	
MA	25,976	161	8,139	61	12,527	81	1.5	1.3
NH	38,838	461	12,636	142	17,954	229	1.4	1.6
NJ	27,858	182	6,435	52	16,482	98	2.6	1.9
NY	66,399	498	22,530	213	29,922	190	1.3	0.9
NC	4,628	94	1,492	35	2,183	27	1.5	
PA	34,600	203	10,994	57	15,943	115	1.5	2.0
RI	2,488	8	482	3	1,647	3	3.4	
SC	4,275	163	1,376	59	1,904	72	1.4	1.2
VT	30,295	473	9,970	165	13,793	204	1.4	1.2
VA	6,708	263	1,751	85	3,647	113	2.1	1.3
WV	6,705	38	2,027	14	3,346	12	1.7	
Region	366,310	3,515	111,161	1,180	180,002	1,641	1.62	1.51
Central Regi	on							
AL	1,028	17	286	8	469	6	1.6	
AR	577	20	187	7	235	7	1.3	
IL	1,518	0	358	0	851	0	2.4	
IN	8,884	73	2,268	17	4,911	40	2.2	
IA	1,399	5	453	0	625	4	1.4	
KS	50	0	9	0	26	0		
KY	1,319	14	342	3	661	5	1.9	
LA	34,253	146	7,718	39	22,098	86	2.9	2.2
MI	149,250	2,121	49,204	748	72,662	995	1.5	1.3
MN	47,419	1,215	16,974	457	20,149	552	1.2	1.2
MS	1,998	1	564	0	1,008	1	1.8	
MO	4,779	46	1,302	14	2,307	27	1.8	
NE	13	0	5	0	6	0		
ND	4	0	3	0	1	0		
OH	15,571	77	4,794	20	7,314	39	1.5	
OK	174	1	38	1	92	0	2.4	
TN	1,380	9	370	4	701	0	1.9	
TX	1,110	10	322	3	541	4	1.7	
WI	99,789	2,097	34,026	747	46,587	974	1.4	1.3
Region	370,515	5,852	119,223	2,068	181,244	2,740	1.52	1.40

Table 3. Preliminary estimates of woodcock harvest, hunter numbers, days afield, and hunter success from the 2019–20 Harvest Information Program (note: all estimates rounded to the nearest 100 for harvest, hunters, and days afield).

	Harvest		Active woodcock		Days afield		Season harvest	
				hunters			per hu	
.	Total	SE	Total	SE	Total	SE	Total	SE
Eastern	_	200	000	200	4.700	1.600	1.57	0.50
CT	1,200	300	800	200	4,700	1,600	1.57	0.52
DE	100	0	0	0	100	100	2.5	1.65
FL	0	0	200	100	800	800	0	(
GA	1,800	1,600	4,800	2,700	6,500	3,800	0.39	0.4
MA	2,200	400	1,500	200	7,900	1,300	1.49	0.33
MD	300	100	200	0	500	100	1.38	0.65
ME	6,200	500	3,300	600	15,300	2,700	1.88	0.39
NC	3,400	3,400	2,300	2,100	14,500	12,500	1.50	2.01
NH	3,200	600	1,800	400	8,000	1,300	1.84	0.50
NJ	1,400	500	1,100	400	2,700	900	1.27	0.66
NY	6,500	2,000	2,800	600	16,900	4,800	2.33	0.87
PA	2,700	600	4,100	900	12,000	2,800	0.65	0.21
RI	200	100	100	100	800	200	1.34	0.79
SC	1,300	300	200	0	1,200	200	5.52	1.67
VA	1,500	500	800	500	3,300	1,600	1.81	1.30
VT	2,900	700	1,200	300	5,200	1,100	2.31	0.7ϵ
WV	400	100	300	100	700	200	1.31	0.60
Region	35,300	4,500	25,500a	na ^a	101,200	14,800	$\mathbf{n}\mathbf{a}^{\mathrm{b}}$	nal
	,	,	,		,	,		
Central 1	Region							
AL	1,000	900	100	0	300	300	15.5	18.11
AR	6,800	6,200	7,000	4,600	14,400	8,400	0.97	1.10
IA	1,600	1,300	600	300	4,500	2,600	2.67	2.51
IL	3,400	3,400	2,300	1,600	11,300	9,300	1.50	1.81
IN	400	100	500	300	1,100	500	0.75	0.48
KSc								
KY	100	100	100	0	200	100	0.80	0.69
LA	1,500	1,200	1,300	1,100	6,000	5,600	1.15	1.33
MI	64,500	15,200	19,100	2,400	86,100	12,600	3.37	0.90
MN	20,800	4,500	8,700	1,900	29,300	5,700	2.38	0.73
MO	300	100	100	0	800	200	2.25	0.99
MS	100	0	100	0	300	200	0.75	0.53
NEc	100	Ü	100	Ü	200	200	0.7.0	0.00
ОН	700	300	1,100	900	2,400	1,000	0.65	0.60
OK	300	200	100	0	400	200	3.40	3.23
TN	5,000	4,800	1,600	1,600	11,300	11,200	3.08	4.21
TX	2,800	1,700	300	100	1,300	800	10.67	8.06
WI	26,800	5,300	9,500	1,700	47,000	9,400	2.81	0.74
Region	136,000	18,900	52,600	1,700 na ^a	216,600	24,500	2.01 na ^b	na ¹
Megion	130,000	10,900	34,000	แล	210,000	44,300	na	па
Total	171,300	19,500	78,100	na ^a	317,800	28,700	na ^b	na ^l

^aHunter number estimates at the regional and national levels may be biased high because the HIP sample frames are state specific; therefore hunters were counted more than once if they hunted in >1 state. Variance was inestimable.

^b Regional estimates of hunter success could not be obtained due to the occurrence of individual hunters being registered in the Harvest Information Program in more than one state.

^c No hunters that registered for HIP in Kansas or Nebraska said they intended to hunt woodcock in 2017.

Appendix A. History of federal framework dates, season lengths, and daily bag limits for hunting American woodcock in the U.S. portion of the Eastern and Central Regions, 1918 - 2019.

	Eastern Re	gion		Central Region				
Year (s)	Outside dates	Season length	Daily bag limit	Year (s)	Outside dates	Season length	Daily bag limit	
1918-26	Oct. 1 - Dec. 31	60	6	1918-26	Oct. 1 - Dec. 31	60	6	
1927	Oct. 1 - Dec. 31	60	4	1927	Oct. 1 - Dec. 31	60	4	
1928-39	Oct. 1 - Dec. 31	30	4	1928-39	Oct. 1 - Dec. 31	30	4	
1940-47	Oct. 1 - Jan. 6	15	4	1940-47	Oct. 1 - Jan. 6	15	4	
1948-52	Oct. 1 - Jan. 20	30	4	1948-52	Oct. 1 - Jan. 20	30	4	
1953	Oct. 1 - Jan. 20	40	4	1953	Oct. 1 - Jan. 20	40	4	
1954	Oct. 1 - Jan. 10	40	4	1954	Oct. 1 - Jan. 10	40	4	
1955-57	Oct. 1 - Jan. 20	40	4	1955-57	Oct. 1 - Jan. 20	40	4	
1958-60	Oct. 1 - Jan. 15	40	4	1958-60	Oct. 1 - Jan. 15	40	4	
1961-62	Sep. 1 - Jan. 15	40	4	1961-62	Sep. 1 - Jan. 15	40	4	
1963-64	Sep. 1 - Jan. 15	50	5	1963-64	Sep. 1 - Jan. 15	50	5	
1965-66	Sep. 1 - Jan. 30	50	5	1965-66	Sep. 1 - Jan. 30	50	5	
1967-69	Sep. 1 - Jan. 31	65	5	1967-69	Sep. 1 - Jan. 31	65	5	
1970-71	Sep. 1 - Feb. 15	65	5	1970-71	Sep. 1 - Feb. 15	65	5	
1972-81	Sep. 1 - Feb. 28	65	5	1972-90	Sep. 1 - Feb. 28	65	5	
1982	Oct. 5 - Feb. 28	65	5	1991-96	Sep. 1 - Jan. 31	65	5	
1983-84	Oct. 1 - Feb. 28	65	5	1997-19	Sep. 22 ^a - Jan. 31	45	3	
1985-96	Oct. 1 - Jan. 31	45	3		•			
1997-01	Oct. 6 - Jan. 31	30	3					
2002-10	Oct. 1 - Jan. 31	30	3					
2011-19	Oct. 1 - Jan. 31	45	3					

^a Saturday nearest September 22nd, which was September 21st for the 2019-20 season.

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