ANNUAL COMPLETION REPORT

MIGRATORY GAME BIRDS

2010

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2010 JOB COMPLETION REPORT

Species: Migratory Game Birds

Wyoming Portions of the Central and Pacific Flyways

Period Covered: September 1, 2009 - August 31, 2010

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INTRODUCTION

The Migratory Game Bird Section has operated with reduced staffing in recent years. Accordingly, surveys and other job duties have been prioritized and in some cases, suspended. During the report period, 1.5 FTEs were assigned to the section.

In cooperation with the U.S. Fish and Wildlife Service, the Migratory Game Bird Section conducted the following annual surveys to derive population indices for management: September crane survey, mid-winter waterfowl survey, Canada goose breeding population survey, Rocky Mountain Population of Canada geese molt survey, and mourning dove call-count survey. The Migratory Game Bird Section remains strongly involved in the Central and Pacific Flyway management efforts, including development and revision of management plans for the various migratory game bird populations and annual season setting. These processes require participation on the Flyway Technical Committees at the December/January, March and July Flyway meetings.

The Migratory Game Bird Section is directly or indirectly involved in the management of all migratory game birds in the two Flyways. Substantial personnel time has been devoted to issues involving wetlands and habitat management over the past year.

During the report period a decision was made to lower the priority of banding effort in Wyoming, resulting in no banding of migratory game birds. The Migratory Game Bird Section provided financial support to the Central Flyway pre-season duck banding effort in North Dakota.

The maintenance and evaluation of over 800 goose nesting structures remains a priority throughout Wyoming. However, reductions in personnel and funding have forced the Department to reevaluate its ability to bed and maintain the structures and to eliminate less effective structures where possible.

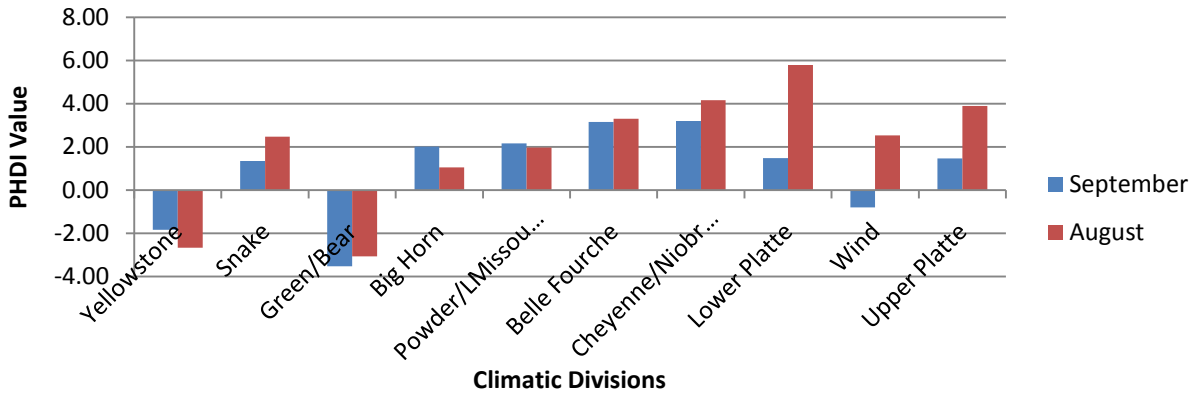
The Bump-Sullivan managed goose hunt was initiated in 1993 to alleviate competition among hunters. The hunt was not operated during the 2009/10 dark goose-hunting season because Bump-Sullivan Reservoir continued to remain dry. The hunt was last operated during the 2001/02 season.

The Section participated in several migratory game bird habitat projects across the state. Local involvement was maintained in the Intermountain West (IWJV) and Northern Great Plains (NGPJV) Joint Ventures. The migratory game bird biologist is a member of the NGPJV Management Board. The migratory game bird biologist and Alpine Staff Biologist are also participants on the Wyoming Joint Ventures Steering Committee, which serves both joint ventures in the state.

WEATHER/HABITAT CONDITIONS

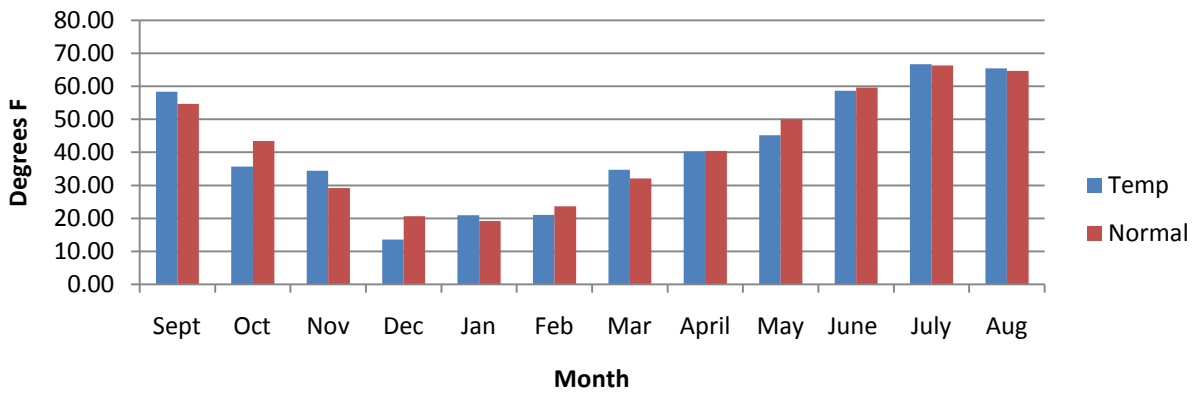
During the report period, September 2009 through August 2010, the monthly Palmer Hydrological Drought Index improved in 7 of the 10 climatic divisions in the state (Figure 1). In August 2010, only the Green/Bear River (severe) and Yellowstone (moderate) basins were classified as being in drought.

Figure 1. September 2009 and August 2010 Palmer Hydrological Drought Indices for the 10 climatic divisions in Wyoming.

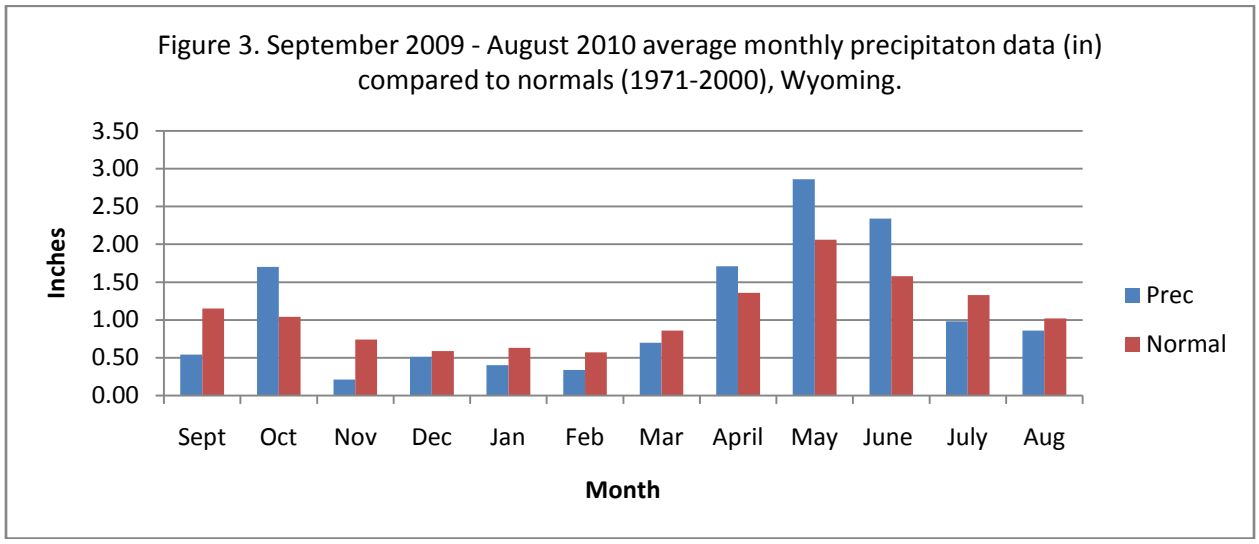


Average monthly temperatures for Wyoming were below normal (1971-2000 average) during 6 months of the report period (Figure 2). The 12-month average of 41.25^{o} F was slightly below normal (42.00^{o} F).

Figure 2. September 2009-August 2010 average monthly temperature data (F) compared to normals (1971-2000), Wyoming.



Average monthly precipitation in Wyoming was below normal (1971-2000 average) during 8 months of the report period (Figure 3). The 12-month total of 13.15 inches was slightly above normal (12.92 in.).



During the fall of 2009, we did not observe an increase in local or migratory waterfowl despite improved water conditions. It is conceivable waterfowl distribution and migration have shifted due to several years of unfavorable weather during late fall and winter coupled with severe drought. In eastern Wyoming colder than normal temperatures in December were accompanied by several high precipitation events. The November through January period was drier than normal. Lower elevation water bodies in eastern Wyoming also froze in December. A protracted passage of migrating waterfowl was noted in western Wyoming, where temperatures were normal to above normal and precipitation was below normal in November and December. Duck and Canada goose populations were near or slightly below normal across the state, with some localized exceptions.

During spring, 2010 brood habitat improved across most of the state. Upland habitats also improved as a long-term hydrologic drought continued to moderate. However, normal or below normal temperatures and above normal precipitation during April, May, and June may have impacted reproductive success of migratory game birds. Very few mourning doves appeared to remain in southeastern Wyoming during the nesting season.

The computation of the June Surface Water Supply Index (SWSI) includes reservoir storage, if applicable, plus the forecast runoff. All drainages, except the Green, Shoshone, and Snake River drainages, had adequate or surplus water supplies in 2010. As of June 1, reservoir storage was 109% of average for the entire state, although storage levels varied widely at individual reservoirs across the state.

Near normal recharge of springs and streams is improving water distribution throughout Wyoming. However, uncontrolled grazing in and adjacent to mesic areas during dry years has negatively impacted the long-term health of these plant communities.

2010 Waterfowl Breeding Habitat Conditions

Overall, climatic on breeding grounds throughout the traditional and eastern survey areas were characterized by average to below-average moisture and a mild winter and early spring. Habitat conditions generally remained better than average. The total May pond estimate (wetland basins with standing water in Prairie and Parkland Canada and north central U.S.) was 6.7 million. This was similar to last year's estimate and 34% above the long-term average. Conditions across the Canadian prairies were similar to 2009. Portions of southern Alberta and Saskatchewan improved but a large area along the Alberta and Saskatchewan border remained dry. Residual water remained in the Parklands, which were classified as fair to good.

Habitat conditions in the surveyed portion of the U.S. prairies declined through the western Dakotas and Montana. The May pond estimate was 2.9 million, similar to last year's estimate and 87% above the long-term average. Habitat conditions in the eastern Dakotas were generally good in 2009 and further improved with ample fall and winter precipitation. However, wetlands in the western Dakotas and Montana were not recharged, resulting in a deterioration of conditions compared to 2009.

Habitat in the bush regions of the survey area (Alaska, Yukon, Northwest Territories, northern Manitoba, northern Saskatchewan, and western Ontario) benefitted from an early spring break-up. Unlike in 2009, the majority of habitats were ice-free for arriving waterfowl. Habitat of most of the bush region, with the exception of Alaska and the Northwest Territories, was fair due to below-average moisture, but the early spring should have increased waterfowl production across the entire area.

Temperatures in much of central and northern Canada were more than 5^{o}C warmer than average from January through April in 2010. Above-average temperatures persisted into May and June in eastern Canada where accelerated snowmelt contributed to favorable nesting conditions for several mid-latitude and Arctic nesting goose populations. Persistent snow cover significantly delayed nesting only in the Queen Maud Gulf, Victoria Island, and Wrangel Island regions. Harsh conditions in portions of the Central Arctic will reduce gosling production of Ross' and white-fronted geese that migrate predominately through the Central Flyway for a fourth consecutive year. Improved wetland abundance in the Canadian and U.S. prairies, and other temperate regions likely contributed to an increase in nesting and brood rearing success this year. In several western states and other regions, drought or flooding reduced production potential. Production of temperate-nesting Canada geese is expected to be above-average in throughout most of the North American range, with the exception of the western United States. Primary abundance indices decreased for 15 goose populations and increased for 12 goose populations compared to 2009 levels. Primary abundance indices for both populations of tundra swans decreased compared to 2009 levels. The forecast production of geese and swans in North America is regionally variable for 2010, but production of many populations will improved compared to the poor production widely experienced in 2009.

Although habitat and improved across much of Wyoming, cool and wet weather and/or high or rising water levels during spring and early summer may have had some negative impact on migratory game bird production. The extent of the impact is unknown. However, more

favorable habitat conditions will improve status of migratory game bird population from January through April in 2010 in the long term.

DUCKS AND MERGANSERS

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING GROUND SURVEY

The duck breeding ground survey historically flown by the WGFD was suspended after the 1999 survey.

Forecasts of fall duck flights are based on continental trends in duck breeding populations and water conditions on breeding grounds in traditional survey areas.

The continental population of breeding ducks decreased 3% from 2009 to 2010 and was 19% above the long-term average (Tables 1 and 3). The breeding population of mallards in the traditional survey area decreased 1% from the 2009 level, but remained 12% above the long-term average (Tables 2 and 3).

Short and long-term changes in breeding populations of 10 major duck species are shown in Table 3. In 2010, the counts of seven species increased by comparison to 2009 levels. Breeding populations of American wigeon, northern pintail, and scaup declined from 2009 to 2010.

The fall flight of mid-continent mallards was forecast to be 10.3 million in 2010, unchanged from the 2009. The mid-continent mallard population is composed of mallards from the traditional survey area, which was revised in 2008 to exclude Alaska mallards, and also includes mallards from Michigan, Minnesota, and Wisconsin. These indices were based on mid-continent mallard population models revised in 2002, and the 2008 updated model weights, and therefore differ from those previously published.

2009 DUCK HARVEST INFORMATION

In 2009, the Department estimated 51,160 ducks were harvested in Wyoming (Table 4). The 2009 harvest was less than recorded in 2007 and 2008, and 39% below the Department's objective. During the last decade, harvest trends in Wyoming generally did not match the continental trends duck populations, likely due to severe drought that prevailed in Wyoming throughout this time frame. Harvest estimates derived from the USFWS's Harvest Information Program (HIP) are consistently dissimilar from Department estimates (Table 7). The Service determined there may be issues with recovery of HIP registrations form some categories of license venders.

In the Central Flyway portion of Wyoming, 37,765 ducks were harvested in 2009 (Table 5). This harvest was 8% less than recorded in 2008 and 31% below the Department's objective for the Central Flyway. Wyoming waterfowl/wetland management areas are depicted in Figure 4.

In the Pacific Flyway portion of Wyoming, 13,653 ducks were harvested in 2009 (Table 6). This was 15% above the 2008 harvest of 12,113 ducks, but remains 53% below the Department's objective for Pacific Flyway duck harvest.

The mallard was the predominant species harvested by Wyoming hunters (Tables 7). American wigeon, teal, gadwall, and goldeneyes were also numerically important species in the harvest. Presently, HIP estimates do not distinguish harvests of duck species according to Flyway in any of the Rocky Mountain States. Estimating state-specific sales of duck stamps is becoming increasingly problematic for the USFWS. Flyway-specific estimates of the total duck harvest are provided in Table 8.

WINTER SURVEYS

The number of ducks counted in the Central Flyway portion of the state during early January was 20% below the long-term average (Table 9). The number of ducks counted in the Pacific Flyway portion of the state was 2% below the long-term average.

DUCK BANDING

The Department supported a cooperative duck banding effort by the Central Flyway states in 2009. One crew banded ducks in western North Dakota.

RECOMMENDATIONS

1. Continue to support objectives of the Adaptive Harvest Management program and the North American Waterfowl Management Plan.

2. Work with Department personnel, joint ventures, and other interests to identify and develop wetland projects designed to increase local duck production, hold more birds in the fall, and provide additional harvest opportunity. Increase public access to key waterfowl harvest areas statewide.

3. Support acquisition and development of the Cokeville Meadows National Wildlife Refuge. Provide biological information when requested and make recommendations to the U.S. Fish and Wildlife Service regarding the development and eventual management of refuge lands.

4. Support duck and goose banding efforts in both Flyways.

5. Review and critique federal policies and regulations affecting waterfowl management in Wyoming.

6. Continue to support and participate in the Flyway system of waterfowl management.

Table 1. Duck breeding population estimates (in thousands), for regions in the traditonal survey area, 2009 and 2010.

SURVEY AREA	2009	2010	PERCENT CHANGE
TRADITIONAL AREAS			
Alaska - Yukon Territory - Old Crow Flats	4,345	5,556	28%
C. & N. Alberta - N.E. British Columbia - Northwest Territories	6,934	8,717	26%
N. Saskatchewan - N. Manitoba - W. Ontario	3,813	2,149	-44%
S. Alberta	3,288	2,641	-20%
S. Saskatchewan	8,053	6,839	-15%
S. Manitoba	1,371	1,104	-19%
Montana and western Dakotas	2,468	1,977	-20%
Eastern Dakotas	11,733	11,910	2%
TOTAL[a]	42,005	40,893	-3%

[a] Includes the 10 species in Table 3 plus American black duck, ring-necked duck, goldeneyes, bufflehead, and ruddy duck. Excludes eiders, long-tailed duck, wood duck, scoters, and mergansers.
Source: USFWS. Trends in duck breeding populations, 1955-2010.

Table 2. Mallard breeding population estimates (in thousands) for regions in the traditional survey area, 2009 and 2010.

SURVEY AREA	2009	2010	PERCENT CHANGE
TRADITIONAL AREAS			
Alaska - Yukon Territories - Old Crow Flats	503	606	20%
C. & N. Alberta - N.E. British Columbia - Northwest Territories	1,080	1,423	32%
N. Saskatchewan - N. Manitoba - W. Ontario	930	801	-14%
S. Alberta	754	598	-21%
S. Saskatchewan	1,867	1,699	-9%
S. Manitoba	417	351	-16%
Montana & western Dakotas	444	533	20%
Eastern Dakotas	2,517	2,420	-4%
TOTAL	8,512	8,431	-1%

Source: USFWS. Trends in duck breeding populations, 1955-2010.

Table 3. Changes in breeding population estimates (in thousands) for 10 species of ducks in the traditional survey area.

SPECIES	2009	2010	PERCENT CHANGE BETWEEN 2009 AND 2010	LTA	PERCENT CHANGE BETWEEN 2010 AND THE 1955 - 09 AVERAGE
Mallard	8,512	8,430	-1%	7,529	12%
Gadwall	3,054	2,977	-3%	1,787	67%
American wigeon	2,469	2,425	-2%	2,607	-7%
Green-winged teal	3,444	3,476	1%	1,948	78%
Blue-winged teal	7,384	6,329	-14%	4,657	36%
Northern shoveler	4,376	4,057	-7%	2,312	75%
Northern pintail	3,225	3,509	9%	4,041	-13%
Redhead	1,044	1,064	2%	652	63%
Canvasback	662	585	-12%	570	3%
Scaup (Greater and lesser combined)	4,172	4,244	2%	5,073	-16%
TOTAL	38,342	37,096	-3%	31,176	19%

Source: USFWS. Trends in duck breeding populations, 1955-2010.

Table 4. Wyoming duck harvest and hunter activity by Flyway, 2007-2009.

	MEAN 2003-07	2007	2008	2009	OBJECTIVE
CENTRAL FLYWAY					
No. Hunters	5,111	5,503	4,544	4,622	9,216
No. Rec. Days	29,398	30,016	26,716	24,950	45,235
Harvest	44,880	49,454	41,047	37,765	54,394
PACIFIC FLYWAY					
No. Hunters	1,585	2,047	1,536	1,482	3,970
No. Rec. Days	7,666	9,041	6,615	7,160	19,148
Harvest	14,790	19,024	12,113	13,653	29,294
TOTALS					
No. Hunters	6,696	7,550	6,080	6,104	13,186
No. Rec. Days	37,064	39,057	33,331	32,110	64,383
Harvest	59,670	68,478	53,160	51,418	83,688

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2004-2010.

Table 5. Duck harvest and hunter activity data for waterfowl management areas in the Central Flyway portion of Wyoming.

MANAGEMENT AREA			MEAN 2003-07	2007	2008	2009	OBJECTIVE
Missouri/Cheyenne/ Little Powder Rivers	1A	No. Hunters	274	397	384	193	398
		No. Rec. Days	1,128	1,943	1,528	1,142	1,791
		Harvest	1,752	2,977	2,313	2,266	1,393
Tongue/Little Big Horn/Powder Rivers	1B	No. Hunters	297	377	273	285	547
		No. Rec. Days	1,841	1,734	1,134	1,473	2,461
		Harvest	2,335	3,083	1,940	1,954	3,063
Central North Platte River	1C	No. Hunters	874	852	706	846	1,603
		No. Rec. Days	5,528	4,761	5,465	5,417	8,015
		Harvest	8,321	6,978	7,967	7,526	7,214
Lower North Platte River	2A	No. Hunters	1,187	1,121	940	913	2,050
		No. Rec. Days	7,004	7,680	5,943	4,568	9,225
		Harvest	10,433	12,907	7,128	5,840	9,225
South Platte River	2B	No. Hunters	119	150	72	109	193
		No. Rec. Days	487	604	211	521	965
		Harvest	907	1,567	286	839	869
Upper North Platte River	3A	No. Hunters	385	416	333	450	1,075
		No. Rec. Days	1,423	1,181	1,511	1,994	4,838
		Harvest	2,283	2,956	2,515	2,646	5,160
Big Horn River	4A	No. Hunters	1,393	1,567	1,329	1,327	2,200
		No. Rec. Days	9,037	8,311	8,086	7,812	12,000
		Harvest	14,488	14,675	14,821	12,525	20,000
Yellowstone River	4B	No. Hunters	25	85	73	12	100
		No. Rec. Days	145	350	286	48	400
		Harvest	180	424	498	124	500
Wind River	4C	No. Hunters	536	536	425	442	950
		No. Rec. Days	2,745	3,448	2,543	1,870	5,000
		Harvest	4,086	3,878	3,568	3,761	6,200
Sweetwater River	4D	No. Hunters	22	2	9	45	100
		No. Rec. Days	59	4	9	105	540
		Harvest	94	9	11	284	770
TOTALS		No. Hunters	5,111	5,503	4,544	4,622	9,216
		No. Rec. Days	29,398	30,016	26,716	24,950	45,235
		Harvest	44,880	49,454	41,047	37,765	54,394

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2004-2010.

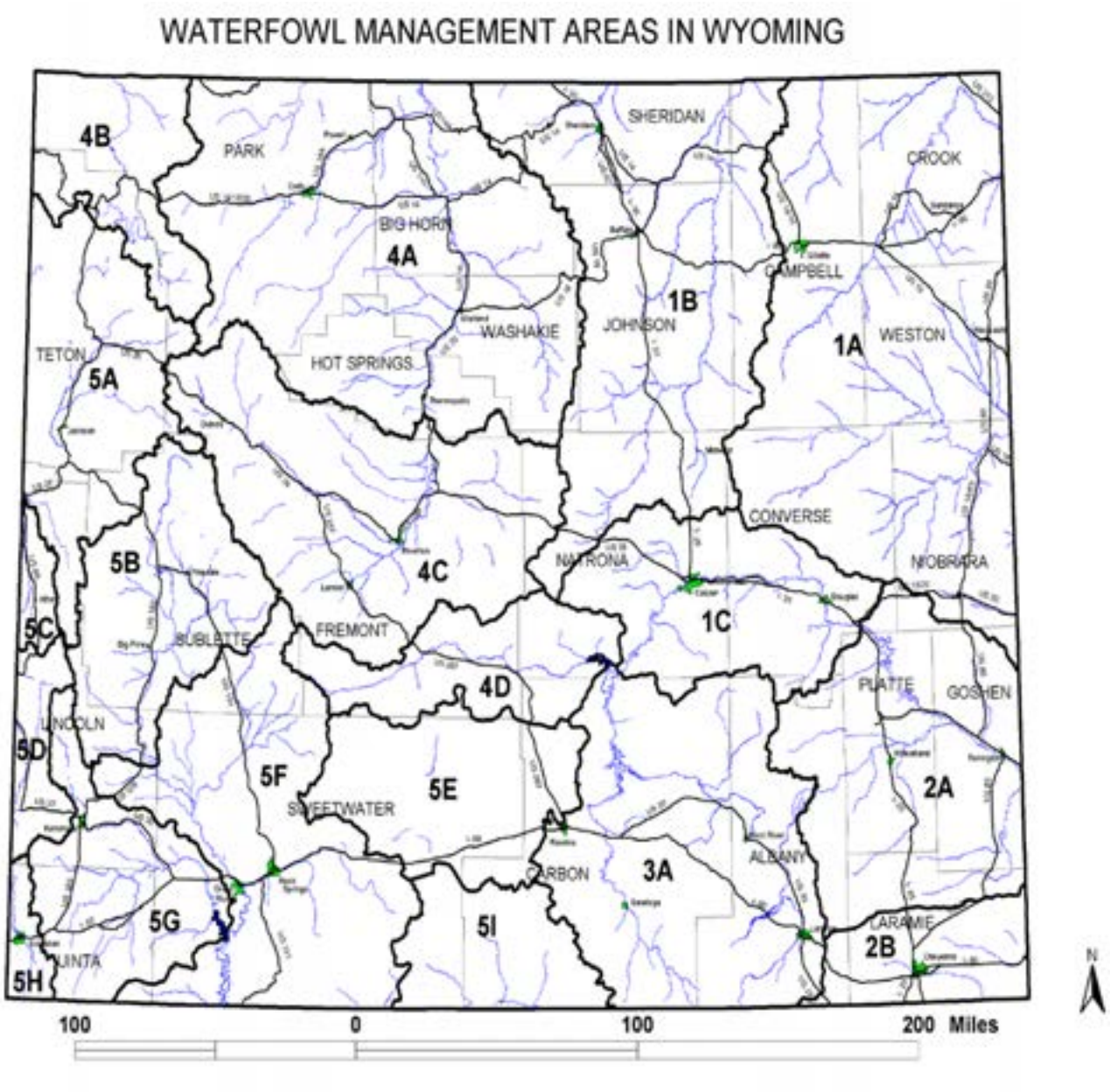


Figure 4. Waterfowl/wetland management areas in Wyoming.

Table 6. Duck harvest and hunter activity data for waterfowl management areas in the Pacific Flyway portion of Wyoming.

MANAGEMENT AREA			MEAN 2003-07	2007	2008	2009	OBJECTIVE
Snake River	5A	No. Hunters	247	217	129	144	440
		No. Rec. Days	1,429	964	471	809	2,200
		Harvest	2,343	1,482	840	868	2,800
Upper Green River Basin	5B	No. Hunters	223	295	238	258	500
		No. Rec. Days	936	1,098	1,010	1,007	2,000
		Harvest	1,863	2,464	1,329	1,636	3,000
Salt River	5C	No. Hunters	261	367	135	150	750
		No. Rec. Days	1,670	2,073	631	914	4,000
		Harvest	3,409	6,328	778	1,963	7,500
Lower Bear River	5D	No. Hunters	92	121	134	91	450
		No. Rec. Days	501	394	558	513	2,048
		Harvest	883	1,006	1,126	1,240	3,294
Great Divide Basin	5E	No. Hunters	20	4	28	36	100
		No. Rec. Days	50	4	64	68	400
		Harvest	78	0	164	88	600
Lower Green River Basin	5F	No. Hunters	374	504	438	408	700
		No. Rec. Days	1,868	2,654	1,952	1,960	3,000
		Harvest	3,759	4,202	3,790	3,732	4,200
Ham's/Black's Fork	5G	No. Hunters	212	312	239	209	600
		No. Rec. Days	679	779	1,223	786	3,000
		Harvest	1,484	1,923	3,223	1,641	3,600
Upper Bear River	5H	No. Hunters	112	175	163	163	330
		No. Rec. Days	410	926	634	1,062	1,900
		Harvest	759	1,346	726	2,385	3,500
Little Snake River	5I	No. Hunters	43	52	32	23	100
		No. Rec. Days	123	149	72	41	600
		Harvest	210	273	137	100	800
TOTALS		No. Hunters	1,585	2,047	1,536	1,482	3,970
		No. Rec. Days	7,666	9,041	6,615	7,160	19,148
		Harvest	14,790	19,024	12,113	13,653	29,294

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2004-2010.

Table 7. HIP estimates of duck harvest and hunter activity in Wyoming[a] during the 2007-2009 hunting seasons.

DUCK SPECIES COMPOSITION	2007	% OF BAG	2008	% OF BAG	2009	% OF BAG
Mallard	32,396	64.92	22,255	66.63	25,784	57.94
Domestic mallard	0	0.00	0	0.00	0	0.00
Gadwall	3,343	6.70	2,229	6.67	2,738	6.15
Wigeon	3,708	7.43	2,804	8.40	4,679	10.51
Green-winged teal	3,039	6.09	2,157	6.46	3,584	8.05
Blue-winged Teal/Cinnamon teal	1,580	3.17	1,330	3.98	747	1.68
Northern shoveler	669	1.34	216	0.65	299	0.67
Northern pintail	912	1.83	467	1.40	896	2.01
Wood duck	486	0.97	180	0.54	299	0.67
Redhead	669	1.34	72	0.22	299	0.67
Canvasback	122	0.24	72	0.22	348	0.78
Great scaup	122	0.24	0	0.00	0	0.00
Lesser scaup	182	0.36	36	0.11	299	0.67
Ring-necked duck	122	0.24	108	0.32	548	1.23
Goldeneyes	1,276	2.56	1,258	3.77	3,634	8.17
Bufflehead	912	1.83	144	0.43	249	0.56
Ruddy duck	61	0.12	36	0.11	0	0.00
Long-tailed duck	0	0.00	0	0.00	0	0.00
Scoters	182	0.36	0	0.00	0	0.00
Hooded merganser	0	0.00	0	0.00	0	0.00
Other mergansers	122	0.24	36	0.11	100	0.22
Other ducks	0	0.00	0	0.00	0	0.00
TOTAL	49,903	100.00	33,400	100.00	44,503	100.00
TOTAL DUCK HARVEST	49,900+/-49%		33,400+/-27%		44,500+/-39%	
TOTAL ACTIVE DUCK HUNTERS	4,600+/-17%		3,600+/-19%		4,100+/-20%	
TOTAL DUCK HUNTER DAYS AFIELD	23,900+/-29%		18,800+/-22%		22,300+/-26%	
SEASONAL DUCK HARVEST PER HUNTER	10.9+/-52%		9.2+/-33%		10.7+/-44%	
Sample Sizes						
Duck Wings	821		929		894	
Federal Duck Stamps Sold	6,603		Unk		Unk	

[a] Central and Pacific Flyway estimates are combined and will continue to be for the near future.

Source: USFWS. HIP preliminary harvest estimates and Duck Stamp sales.

Table 8. Flyway-specific estimates of duck harvest in Wyoming during the 2003-09 hunting seasons.

Duck Harvest Year	Central Flyway	Pacific Flyway	Total
2003	35,700	3,900	39,600
2004	39,700	3,100	42,800
2005	25,900	10,000	35,900
2006	31,200	14,100	45,300
2007	37,000	12,900	49,900
2008	26,900	6,500	33,400
2009	32,700	11,800	44,500

Source: USFWS. HIP preliminary harvest estimates.

Table 9. Changes in ducks and mergansers counted during the mid-winter survey in Wyoming, 2010 to the long-term average.

	CENTRAL FLYWAY			PACIFIC FLYWAY		
SPECIES	**2010**	**LTA**	Between 2010 and The 1992 - 09 Average	**2010**	**LTA**	Between 2010 and The 2002 - 09 Average
Mallard	45,586	60,019	-24%	2,090	2,143	-2%
Gadwall	393	1,031	-62%	6	12	-50%
American wigeon	574	1,086	-47%	1	0	0%
Green-winged teal	264	503	-48%	40	41	-2%
Blue-winged teal/ Cinnamon teal	0	0	0%	0	0	0%
Northern shoveler	0	20	-100%	0	0	0%
Northern pintail	78	185	-58%	0	1	-100%
Wood duck	22	22	0%	0	0	0%
Redhead	67	8	738%	0	125	-100%
Canvasback	0	0	0%	0	0	0%
Scaup	135	15	800%	0	0	0%
Ringneck	123	74	66%	0	0	0%
Goldeneye	10,230	7,638	34%	2,165	1,905	14%
Bufflehead	218	132	65%	0	4	-100%
Ruddy duck	19	2	850%	0	0	0%
Mergansers	1,314	2,947	-55%	456	516	-12%
Unidentified	0	37	-100%	0	117	-100%
TOTAL	59,023	73,719	-20%	4,758	4,864	-2%

Source: WGFD and USFWS 1992 - 2010 MWS reports.

HI-LINE POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

Prior to 2000, the Department's management objective was based on the number of indicated breeding pairs of Canada geese. In 2000, the Department began reporting the total number of Canada geese counted in the April/May breeding ground survey. This is the common measure used by other jurisdictions in the Central Flyway.

The Hi-Line population of Canada geese that breeds in Wyoming has exceeded the Department's objectives for several years (Table 1). No visibility correction factor (VCF) was used to calculate these indices. Consequently, they differ from those previously calculated with a VCF of 2. The Waterfowl Section is inadequately staffed to survey all management areas annually. The decrease in the number of Canada geese counted, the last 2 years, was attributed to high water and cold weather conditions.

TRAPPING AND BANDING STUDIES

No HLP Canada geese were trapped and banded during 2010. The most recent banding effort was in 2004. No recoveries from the 2004 banding effort were reported to the Bird Banding Laboratory this past year.

HARVEST

The number of hunters and recreation days were less than the Department's objectives for the Hi-Line and Short Grass Prairie populations (Table 2). However, harvest was above the objective. The only year all three parameters exceeded objectives were 2005. Harvest decreased 31% from 2008 to 2009. The statewide goose harvest estimated by the USFWS is 18% lower than the Wyoming state estimate (Tables 2 and 3 of this chapter and Tables 6 and 7 of the RMP of CAGE chapter). The Canada goose season opened September 26 in zone C2 of the Central Flyway. The season opened October 3 throughout zone C1 of the Central Flyway; Goshen and Platte Counties were open October 3 through 20 and November 14 through February 8. All goose species collectively are included in the estimates of goose harvest and hunter activity.

During 2009-10, shooting hours for dark geese were ½ hour before sunrise until 1:00 p.m. in Goshen and Platte counties, except all-day hunting was allowed October 3-20, all Saturdays and

Wednesdays from November 14 through December 31, and all Saturdays, Sundays, and Wednesdays from January 1 through the close of the dark goose season.

WINTER SURVEY

Mid-Winter Waterfowl Survey

State and Federal agencies conduct the mid-winter waterfowl survey throughout the United States during the first week in January. The purpose of the survey is to estimate the continental population of wintering waterfowl. Midwinter counts of the Hi-Line and Short Grass Prairie populations of Canada geese are summarized in Table 5. Near-normal winter weather increased the migration of geese from northern breeding and staging grounds. In eastern Wyoming most roost sites held adequate water due to an increase in precipitation. The 2010 count for Goshen and Platte counties was the second highest since 2001.

RECOMMENDATIONS

1. Continue the staggered sunset and 1 P.M. hunting closures for geese in Goshen County. Evaluate the effect of all-day hunting on Wednesdays and Saturdays beginning with the 2004-05 season. No evaluation will be attempted until several years of data are available from the Bump-Sullivan Managed Goose Hunt, which was only reopened in 2010-11. Prolonged hydrologic drought, lack of specific hunter effort and harvest data, and delayed migration chronology makes an evaluation, without specific Bump-Sullivan data, unproductive.

2. Continue the breeding population survey, mid-winter survey and banding program (as manpower and resources allows).

3. Determine the effect all-day shooting has on resident and migrating geese in Goshen County.

4. Determine what actions can be taken to maximize harvest of Canada geese from the Hi-Line Population. Continue hunting dark geese in Goshen and Platte Counties for maximum season length of 107 days.

Table 1. Canada goose breeding populations in the Hi-Line range of Wyoming.

MANAGEMENT AREA	MEAN 2004-2008	2008	2009	2010	CHANGE BETWEEN 09 AND 10	OBJECTIVE
Missouri and Little Powder Rivers	2,915	2,944	2,131	2,131	NA	1,820
Tongue/Powder Rivers	3,194	4,161	2,899	2,899	NA	718
Central North Platte River	1,139	1,518	1,518	1,136	-25%	666
Lower North Platte River	1,242	960	960	1,092	14%	1,128
South Platte River	139	167	81	81	NA	26
Upper North Platte River (Laramie Plains)*	1,019	1,146	785	785	NA	513
TOTAL	9,647	10,896	8,374	8,124	-3%	4,871

* Represents probable Hi-Line production area in Albany county and the Medicine Bow Drainage.
Not all management areas are surveyed annually. To generate population estimates areas not surveyed during a year were assigned the most recent year's data. No visibility correction factor was used.
Source: WGFD. Unpublished data.

Table 2. Hi-line and SGP Canada goose harvest in Wyoming.

	MEAN	MANAGEMENT AREA			CHANGE BETWEEN	
	2003-07	2007	2008	2009	08 and 09	OBJECTIVE
		MISSOURI AND LITTLE POWDER RIVER				
No. Hunters	220	295	318	185	-42%	299
No. Rec. Days	854	1,060	965	1,077	12%	1,495
Harvest	815	1,516	1,395	1,502	8%	598
		TONGUE/POWDER RIVER				
No. Hunters	191	287	101	148	47%	286
No. Rec. Days	777	1,032	220	634	188%	1,430
Harvest	653	687	173	654	278%	715
		CENTRAL NORTH PLATTE RIVER				
No. Hunters	672	576	650	579	-11%	1,106
No. Rec. Days	4,375	3,531	3,572	3,689	3%	5,530
Harvest	2,593	2,286	2,831	1,675	-41%	1,465
		LOWER NORTH PLATTE RIVER				
No. Hunters	2,297	1,473	1,948	1,881	-3%	2,772
No. Rec. Days	13,804	9,584	13,005	10,222	-21%	15,246
Harvest	15,951	6,580	17,921	11,727	-35%	12,044
		SOUTH PLATTE RIVER				
No. Hunters	65	85	31	79	155%	68
No. Rec. Days	306	644	94	254	170%	272
Harvest	219	222	260	123	-53%	170
		UPPER NORTH PLATTE RIVER*				
No. Hunters	47	47	59	68	15%	165
No. Rec. Days	146	109	207	258	25%	742
Harvest	65	79	281	103	-63%	330
TOTAL						
No. Hunters	3,492	2,763	3,107	2,940	-5%	4,696
No. Rec. Days	20,262	15,960	18,063	16,134	-11%	24,715
Harvest	20,296	11,370	22,861	15,784	-31%	15,322

* Calculated as 33% of the Upper North Platte Management Area.

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2004-2010.

Table 3. HIP estimates of goose harvest and hunter activity in Wyoming[a] during the 2007-2009 regular hunting seasons.

GOOSE SPECIES COMPOSITION	2007	% OF BAG	2008	% OF BAG	2009	% OF BAG
Canada Goose	12,957	99.67	27,500	100.00	21,134	99.69
Snow Goose	0	0.00	0	0.00	66	0.31
Blue Goose	0	0.00	0	0.00	0	0.00
Ross's Goose	43	0.33	0	0.00	0	0.00
White-fronted Goose	0	0.00	0	0.00	0	0.00
Brant	0	0.00	0	0.00	0	0.00
Other Goose	0	0.00	0	0.00	0	0.00
TOTAL	13,000	100.00	27,500	100.00	21,200	100.00
TOTAL GOOSE HARVEST	13,000+/-21%		27,500+/-29%		21,200+/-46%	
TOTAL ACTIVE GOOSE HUNTERS	3,900+/-17%		3,700+/-17%		3,600+/-19%	
TOTAL GOOSE HUNTER DAYS AFIELD	20,300+/-28%		20,300+/-26%		17,000+/-23%	
SEASONAL GOOSE HARVEST PER HUNTER	3.3+/-27%		7.5+/-33%		5.8+/-50%	
ACTIVE WATERFOWL HUNTERS[b]	6,300+/-12%		5,200+/-14%		5,800+/-15%	
Sample Sizes						
Goose Tails	301		426		322	
Federal Duck Stamps Sold	6,603		Unk		Unk	

[a] Central and Pacific Flyway estimates are combined and will continue to be for the near future.

[b] Duck and goose hunters combined.

Source: USFWS. HIP preliminary harvest estimates.

Table 4. Flyway-specific estimates of goose harvest in Wyoming during the 2003-09 hunting seasons.

Goose Harvest Year	Central Flyway	Pacific Flyway	Total
2003	23,400	1,200	24,600
2004	20,600	2,200	22,800
2005	18,900	1,200	20,100
2006	21,200	1,700	22,900
2007	11,900	1,100	13,000
2008	22,500	5,000	27,500
2009	17,100	4,100	21,200

Table 5. Mid-winter surveys of Hi-line/SGP Canada geese in Wyoming, 2006 - 2010.

Population Hi-line	2006	2007	2008	2009	2010	Average
LOWER NORTH PLATTE RIVER						
Goshen and Platte Co.	47,393	10,208	6,155	32,377	33,926	26,012
CENTRAL NORTH PLATTE RIVER						
Carbon, Converse and Natrona Co.	8,791	5,210	3,721	9,777	8,552	7,210
TOTAL	56,184	15,418	9,876	42,154	42,478	33,222

SGP	2006	2007	2008	2009	2010	Average
LOWER NORTH PLATTE RIVER						
Goshen and Platte Co.	6,462	698	378	3,203	1,414	2,431
CENTRAL NORTH PLATTE RIVER						
Carbon, Converse and Natrona Co.	1,198	356	228	967	162	582
TOTAL	7,660	1,054	606	4,170	1,576	3,013

Hi-line and SGP combined	2006	2007	2008	2009	2010	Average
LOWER NORTH PLATTE RIVER						
Goshen and Platte Co.	53,855	10,906	6,533	35,580	35,340	28,443
CENTRAL NORTH PLATTE RIVER						
Carbon, Converse and Natrona Co.	9,989	5,566	3,949	10,744	8,714	7,792
TOTAL	63,844	16,472	10,482	46,324	44,054	36,235

Source: WGFD. Unpublished data.

ROCKY MOUNTAIN POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Joe Bohne, Staff Biologist and Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

Prior to 2000, the Department based its management objective on the number of indicated breeding pairs of Canada geese. In 2000, the Department began reporting the total number of Canada geese counted in April/May. This is the common measure used by other jurisdictions in the Central Flyway. The Pacific Flyway is currently in the process of revising the Rocky Mountain Population (RMP) Canada goose management Plan. When the revision is completed, the key changes to the plan will be reported in this annual report.

Breeding ground surveys of the Rocky Mountain Population (RMP) of Canada geese are summarized in Table 1. The 2010 survey was conducted in several management areas in both the Central and Western Reference areas. In the Western Reference Area counts were conducted in all management areas except Yellowstone Park and the Great divide Basin. In the Central Reference area, the Wind River and Sweetwater River management areas were surveyed. Declines were observed in most areas compared to 2009. However, increases were noted in the Salt River, Lower Bear River, and Wind River management areas. Overall, numbers were down by 11% in the Western Reference area, 1% in the Central Reference Area, and 7% for the overall population in Wyoming compared to the 2009 counts. In 2010, the total population count of 7,720 geese was 11% below the 2004-2008 average of 8,634 geese.

The breeding population count methodology was revised in 2008 by dropping the visibility correction factor (2 X observed value) to comply with the U. S. Fish and Wildlife Service protocol for data collection. Table 1 was revised accordingly and the data reported prior to 2008 represent a 50% reduction in goose numbers compared to the data reported in the 2007 annual report.

The 2010 count for the Western Reference Area (3,832) is 36% under the population objective (5,998). The 2010 survey total in the Central Reference Area (3,888) is 27% over the population objective (3,050) for that portion of the population in Wyoming (Table 1).

In recent years Yellowstone National Park (YNP) has not been surveyed although a large number of geese breeds and summers in that area. If YNP were included in this report, breeding goose population estimates for the RMP would be much higher in Wyoming.

Prolonged drought conditions in the Pacific Flyway portion of the population are thought to be at least partially responsible for the decline in the breeding population observed prior to 2005. However, improved precipitation during winter and early spring from 2005 to 2006 resulted in increased stream flows and improved wetland conditions, which apparently resulted in improved

goose production and reversed the declining population trends seen earlier in the decade. Drought conditions returned in 2007 in the Western Reference Area. Drought conditions were also prevalent in the Central Reference Area in recent years but goose production continued to increase. In 2008 good to exceptional winter precipitation provided good water conditions but a cold, late spring resulted in a drop in goose production. Many late broods were observed in the Western Reference Area. In 2009 good winter precipitation and late spring rains provided favorable water conditions accompanied by increased brood production and survival. In 2010 a cold wet spring apparently resulted in poor production in most areas. The Salt River management area was the notable exception. In some years with low spring run-off resulting from below normal snowfall during the winter or late spring run-off due to a cool spring, goose production can be enhanced because nests are not flooded out

The Pacific Flyway Study Committee will be revising the RMP Canada Goose Plan in the upcoming year. Since surveys of many breeding populations have deviated significantly from objectives for management areas and reference areas for many years, it would be prudent to reconsider population objectives for Wyoming in the next year.

MOLT SURVEY

Molting surveys have been flown about every three years. Since the survey is not used to set seasons and the counts represent molting birds from numerous states and several populations, the survey's primary value is to document important molting habitat and to document shifts in use over time. Periodic surveys should be flown but have a low priority compared to other surveys for waterfowl in Wyoming. The molting survey was not conducted in 2009 due to funding limitations but was completed in 2010. The previous molt survey was conducted in late June, 2005. Results of the 2010 surveys are summarized in Table 2. The number of molting geese counted in 2010 (19,311) was 4% below the 2002-2006 mean (20,194). As usual, Yellowstone Lake/Yellowstone Meadows and the Wheatland Reservoirs were the major molting areas. In 2010 the water levels in the two Wheatland reservoirs were significantly higher than in previous years. Many of these molting geese are produced in adjacent states and come to these relatively remote locations in Wyoming to molt in areas with little human disturbance.

TRAPPING AND BANDING STUDIES

The U.S. Fish and Wildlife Service began a reward band study of RMP Canada Geese in 2005 to evaluate changes in goose distribution and harvest patterns. Some states had been trapping geese in this population for several years. Colorado and Utah had banded about 10,000 birds by 2005. In 2006, RMP geese were trapped at two sites near Farson, WY in the Western Reference Area. No trapping and banding efforts occurred in 2007. However, efforts were made to band geese at the National Elk Refuge and Lower Slide Lake in Teton County in 2008. Table 3 summarizes the direct band recovery rates for the geese banded in Wyoming during 2004-2008. Direct band recovery is based on band returns for the same biological year in which the birds were banded. In 2004, 70 geese were banded at Ocean Lake. There were 9 band returns from hunters in Wyoming and 1 from Colorado. The direct band recovery rate for these banded birds was 14.3% (10/70). In 2005, 24 geese were banded at Ocean Lake and 3 bands were returned from hunter harvested birds, all in Wyoming. The direct band recovery rate was 12.5% (3/24) for these birds.

A total of 387 geese were banded at Wheatland Reservoir Number 3 on June 15, 2005. Four of these geese died from stress and were recovered following the trapping operation. Thirteen previously banded geese were also recaptured. Based on a sample of 387 geese banded (less the 4 trapping mortalities) a direct recovery rate of 20.4% (78/383) was reported. Only 3 (3.8%) of these band recoveries occurred in Wyoming but 48 (61.5%) were recovered as hunter harvest birds in Colorado. Additional 8 bands were returned from Utah, 6 from New Mexico, 7 from Arizona, 4 from California, and 1 each from Oklahoma, North Dakota, and Nebraska.

A total of 451 adult geese were banded at Big Sandy Reservoir on June 20, 2006. On June 21, 2006 a total of 121 adult birds were banded at Eden Reservoir along with 3 local or juvenile geese. Based on the updated band return data, a direct recovery rate of 14.4% (83/575) was reported from geese banded at Big Sandy and Eden Reservoirs near Farson in June 2006. Band returns from Wyoming accounted for 51.8% (43/83) of the recoveries. Band returns also were reported from Colorado (21/25.3%), Utah (11/13.3%), New Mexico (8/9.6%), and Arizona (1/1.2%). Of the 43 direct band recoveries from geese banded on the reservoirs near Farson, WY in 2006, 25 or 58.1% came from harvested geese taken during the early September goose hunt in the Pacific Flyway and 18 or 41.9% came from the regular hunting season. All band returns from Wyoming came from the Pacific Flyway portion of Wyoming. Most of the geese taken outside Wyoming were harvested in areas that appear to provide winter habitat or are on the winter migration routes for these geese. Surprisingly, no band returns were reported from California. Since so few geese winter in the Pacific Flyway portion of Wyoming (Table 9), one could assume the harvest of geese in other states reflects migration patterns to winter habitat for these birds.

In an effort to determine harvest rates and seasonal movements of birds produced in the Pacific Flyway portion of Wyoming, a very modest banding effort was initiated in 2008. On July 1, 2008, 43 geese were captured at the Visitor Center pond at the National Elk Refuge. Forty-two birds were banded and 16 Avian Influenza samples were taken from adult birds. One adult bird was a trap mortality. Fifteen after-hatch-year geese and 17 local (hatch-year) geese were banded. There were several other prospective trap sites on the Refuge but the geese apparently had moved their broods into the main marsh just prior to the survey, so trapping was not an option. We also made 2 attempts to trap geese on Lower Slide Lake on the Gros Ventre River but neither effort was successful. These geese were predominately molting geese.

A total of 11 (26.2%) direct recoveries were reported from the 2008 banding on the National Elk Refuge. Ten of these recoveries came from birds harvested in the early goose season in 2008 in Jackson Hole and 1 bird was harvested in New Mexico later in the early winter.

Band return data from the various trap sites in the Central Reference Area of the RMP suggest that geese banded at Ocean Lake and Wheatland Reservoir Number 3 are of mixed stocks from the Rocky Mountain population and the Highline Population of Canada geese. Apparently most of the molting geese at Wheatland Reservoir Number 3 come from areas outside Wyoming to molt in this remote reservoir and most of these geese come from both flyway areas in Colorado (61.5% of band returns). However some of these RMP geese are harvested in Utah, New Mexico, Arizona, and California (10% or less of these band returns comes from these states). However, it is unclear if these birds originate in these states and come to Wyoming to molt or if

they are birds from sources unknown that are harvested on their winter range or killed during their winter migration. It is important to band more locally produced geese to get an idea of seasonal movements and harvest rates by state on geese produced in Wyoming. A more comprehensive band return analysis will be presented in the 2011 report.

HARVEST

Early Season

Early season regulations are summarized in Table 4. An early Canada goose season is not offered in the Central Reference Area. Prior to 2004, 3 three of the 6 areas with early September goose hunts in the Pacific Flyway coincided with the RMP sandhill crane seasons. Quotas of goose permits were tied to the crane permit allocation. Permits were also required for the early goose hunt in Teton County, initiated 1997, but were not subject to a quota. The early hunt for geese was expanded in 1999 to include the Blacks Fork/Smith Fork (Hunt Area 7). A new goose hunt area in the Little Snake River drainage was added in 2003. In 2004 the early goose season in the Pacific Flyway became a general hunt with no special permits required for geese. The September hunting season is designed to address damage problems by moving birds off private irrigated hay meadows and cropland while providing some additional hunting opportunity. The transition to a general hunt was encouraged by the USFWS to reduce complex regulations and was supported by the Department's regional personnel to deal with growing damage complaints.

The early September hunt accounted for a small part of the overall goose harvest in the western reference area when the hunt was a permit based hunt. In 2003 the early harvest was about 15% of the regular season harvest. Some distributional shifts in geese have been noted following the early hunts, suggesting the early season may be successfully addressing damage problems. However, some hunters are concerned the early hunts compromise hunting opportunity at the start of the regular season. From 1997-2003 goose harvest in the early season averaged 310 birds. With the advent of the early general hunt it was difficult to assess the impact of the early season on harvest except to monitor the harvest from those sandhill crane hunters who also hunted geese. The harvest survey in 2004 was not designed to specifically survey early season goose hunters to determine harvest data for that hunt. Crane permit holders may not target geese since their primary quarry is sandhill cranes, while other hunters view a crane as a bonus bird in the early goose hunt. Trends in the goose harvest by permit holders probably are not a reliable indicated in the trend of the overall early season goose harvest. The goose harvest by crane permit holders will not be tracked in the 2010 crane harvest survey.

The total number of hunters who had crane permits in 2005 increased by 24 permits and increased again in 2006 by another 51 permits compared to the number of permit holders in 2004. Only 100 crane permits were available in the 4 crane hunt areas in the Pacific Flyway portion of the State in 2007 but that number increased in 2008 and 2009 to 150. The goose harvest by crane permit holders has fluctuated in all hunt areas in recent years as a result in a modification of the harvest allocation for RMP of Sandhill Cranes in Wyoming (Table 5).

The numbers of geese harvested by crane permit holders averaged 1.41 birds per hunter from 1994 to 2003. The harvest rate has fluctuated in recent years, from 1.62 birds per hunter in 2003 to only 0.88 birds per hunter in 2004 and 0.77 birds per hunter in 2005. In 2006, the harvest of

geese by crane permit holders increased to 1.11 birds per hunter but declined slightly to 0.93 geese in 2007, increased to 1.2 birds per hunter in 2008 but declined again to 0.9 geese per hunter in 2009 (Table 5).

Since the early season framework changed in 2004 to a general 8 day season, the harvest of geese has increased. In order to track the harvest in the early season, the annual harvest survey for waterfowl was modified in 2005 to survey hunters who participated in the early goose hunt. Based on that survey the estimated harvest jumped from 396 geese in 2003 to 628 geese in 2005 to 1, 326 geese in 2006 to 1, 426 geese in 2007. The goose harvest during the early season harvest declined in 2008 to 1,101 birds and to only 808 geese in 2009. An average of 2.1 geese per hunter was reported in 2005 compared to 2.4 geese per hunter in the 2006, 1.9 geese per hunter in the 2007 and 2008 harvest, and 1.8 geese per hunter in 2009 (Table 6).

Hunter numbers increased from 292 in 2003 to 298 in 2005, 547 in 2006, and 739 in 2007 but declined in 2008 to 589 hunters and declined again to 450 hunters in 2009. Apparently hunters were slow to respond to the early season opportunities and it took 2 years to see much of an increase in hunting pressure. In 2006 the early season harvest comprised 37% (1,326/3,606) of the total goose harvest in the Western Reference Area. In 2008 the proportion of the total goose harvest taken during the early season was 38% (1,101/2,879). In 2009, proportion of geese taken in the early season harvest increased to 50% (808/1626) of the total goose harvest in the Western Reference Area but the early season harvest and the total harvest declined sharply. Shifts in goose distribution and changes in harvest rates should be monitored for both the early and late goose hunts in the western reference area (Tables 6 and 7).

Regular Season

Regular season harvests in the western and central reference areas are summarized in Tables 7 and 8, respectively. Harvest and hunter activity estimates are for all goose species but RMP Canada geese comprise most of the harvest in the central reference area and almost all the geese in the western reference area. In the western reference area, numbers of hunters, recreation days, and harvest declined sharply in 2008 and again in 2009 compared to the 2003-2007 mean. The 2008 harvest in the western reference area was 1,778 geese, an 18% decrease from the average annual harvest from 2003-2007 of 2,168 geese. The 2009 harvest of 818 geese is a 63% below the 2003-2007 average and is a decline of 54% below the 2008 harvest estimate. The harvest during the regular season increased in the Snake River, Upper Bear River and the Great Divide Basin in 2009, but decreased substantially in the Upper Green River, Lower Green River, Lower Bear River, and Hams Fork/Black's Fork Management Areas (Table 7).

It is unclear how the early season harvest is affecting regular season opportunities in the western reference area. Declines were noted in both the early and regular seasons in 2008 and 2009, possibly reflecting poor reproduction in those years. If the harvest and hunting pressure in the early season continued to grow from the 2007 levels, it is almost certain goose distribution and availability will be affected during the regular season in the western reference area. However, the early hunt has become quite popular and only a few complaints have been registered by regular season hunters.

In the central reference area hunter days in 2009 decreased slightly compared to 2008 (7,948 days compared to 8,826 days) but the estimated harvest in 2009 (7,918 geese) was unchanged from the 2008 harvest estimate of 7,920 geese. The average harvest from 2003-2007 was 5,883 geese. The estimated harvest has fluctuated in past years. The reported harvest in 2009 increased in the Wind River (up 46% to 2,687 geese) and the Sweetwater River management area (up 100% to 36 geese). The Sweetwater River area supports a negligible harvest in most years. The harvest in the Bighorn Basin produces most of the annual harvest in the central reference area (Table 8).

The RMP population harvest objective in Wyoming is 7,967 geese. In 2006, an estimated total of 8,350 geese were harvested from the RMP population. Even though the total harvest for the regular season declined, it was still 5% above the combined harvest objective. In 2007 the total harvest for the RMP was projected to be 6,713 geese (16% below the population harvest objective). In 2008 the estimated total harvest for the RMP was 9,098 geese (14% above the population harvest objective of 7,967). In 2009, the total estimated harvest from the population was 8,736 geese, 10% over the harvest objective for the population with all of the decline coming from the western reference area (Tables 7 and 8).

Annual changes in harvest estimates and population counts may be related to actual changes in the population likely resulting from poor annual production, shifts in local populations out of survey areas as a result of drought or early season hunts, delayed migration from Montana and Alberta due to mild fall weather, or poor counts due to a number of variables. It is unknown if the harvest of birds in the early September season may be causing shifts of geese out of the western reference area by the time the regular season begins. It is also possible that the annual harvest survey has enough variation that wide fluctuations in the harvest estimates occur, rendering the data questionable.

A cursory examination of the harvest objectives for management areas in both reference areas would suggest the objectives are often unreasonable, given harvest statistics for the past 8 years. The Pacific Flyway will initiate a revision of the management plan for the RMP in 2011. It would be prudent to reevaluate the harvest and breeding population objectives for management areas and reference areas in Wyoming.

MID-WINTER SURVEY OF RMP CANADA GEESE

In January 2010, 10,294 geese were counted in the central reference area compared to 15,798 geese in 2009, 9,188 geese counted in 2008, 19,512 geese in 2007 and 6,883 geese counted in January, 2006. The 2007 count was the high count for the 5 year period of record in Table 9. No doubt winter weather patterns affect goose numbers present in the central reference area of Wyoming. Mild winter weather keeps more birds in Montana and severe winter weather pushes birds south. If the winter is fairly open in Wyoming, large numbers of geese stage in the Bighorn Basin and Wind River Management Areas Wyoming and are reflected in the mid-winter waterfowl survey.

In the winter 2006, a total of 627 geese were counted in the Western Reference Area, 36% less than the number counted in the 2005 mid winter survey. The 2006 survey took place during a period of cold weather when areas of open water areas were very limited. Only 637 geese were counted in 2007. The winter of 2008 was severe in western Wyoming and only 147 geese were observed in 2008 mid-winter survey. The 2008 mid-winter survey in the western reference Area was flown in early February to coincide with the winter trumpeter swan survey. This change in the survey dates was approved by the Fish and Wildlife Service and was done to save money and reduce air time for observers since few waterfowl are found in the winter in the Western Reference Area and no significant movements between adjacent states is likely at this time in the winter. In 2009, 340 geese were counted in the early February survey and in 2010 only 147 geese were observed in the mid-winter survey (Table 9).

The total count for the RMP geese in 2007 was 20,149 geese but the total count in 2008 dropped to 9,335 geese. In 2009 the total count for the RMP in Wyoming was 16, 138 geese but the goose count dropped to 10, 441 in 2010. In most years, suitable winter habitat is limited in the most of the western reference area. Goose numbers fluctuate depending on the amount of open water in the western reference area and by the winter severity in Montanan and Central Wyoming which determines the amount of open water and available food resources for geese in these areas. Overall, the RMP is well above objective and most producing states have liberal hunting seasons and early hunts to deal with local depredation issues (Table 9).

RECOMMENDATIONS

1. Continue breeding ground surveys, harvest surveys, and mid-winter surveys.

2. In 2010 and probably in 2011 continue the general, early September hunt in the Pacific Flyway portion of Wyoming to address local damage problems. The proposed bag limit will be 2 a day and 4 in possession from September 1-8. This early hunt should be closely monitored. The decline in goose production in some portions of the western reference area has been a concern and the early general season framework may result in excessive harvest of local geese or could substantially change fall distribution, adversely affecting the harvest opportunities in the regular season. However, the breeding population observed in the western reference area in 2007-2009 suggested the population is recovering to its objective level in spite possible impacts of the early hunting season. However, the drop in the breeding population in both reference areas in 2010 and the low harvest in the western reference area in 2009 suggest population and harvest trends should be scrutinized carefully in the future.

3. Coordinate with the U.S. Fish and Wildlife Service regarding acquisition, planning, and development of the Cokeville Meadows National Wildlife Refuge. Work with the Service and other partners to identify funding to accomplish acquisition and habitat development goals on the Refuge. The Service is working on the CCP for the Refuge in 2010-2011. Continue to work collaboratively to develop an effective CCP and hunt plan.

4. Continue the trapping and banding program in the Western Reference Area in 2011, as resources and time allow, to determine harvest rates and seasonal movements of geese produced

in Wyoming. Conduct a detailed band recovery and distribution analysis as more geese are banded in the Wyoming segment of this population.

5. Represent Wyoming's interests in the update and revision of the RMP Goose Management Plan with other members of the Pacific Flyway Study Committee in 2010 -2011.

6. Review the population and harvest objectives for the RMP of Canada geese in Wyoming in conjunction with the management plan revision being conducted by the Pacific Flyway Study Committee.

Table 1. Breeding population counts within the Rocky Mountain Population of Canada geese.

WESTERN REFERENCE AREA	MEAN 2004-08	2008	2009	2010	CHANGE BETWEEN 09 AND 10	OBJECTIVE
Yellowstone Park	N/A	N/A	N/A	N/A	N/A	N/A
Snake River	521	675	675	594	-12%	589
Upper Green River	389	417	417	318	-24%	718
Salt River	436	386	216	423	96%	615
Lower Bear	557	747	449	555	24%	2,230
Great Divide Basin	28	24	24	24	N/A	26
Lower Green River	646	808	808	502	-38%	461
Ham's/Black's River	902	1,091	1,091	868	-20%	795
Upper Bear River	229	256	256	246	-4%	308
Little Snake River	271	380	380	302	-21%	256
TOTAL	3,979	4,784	4,316	3,832	-11%	5,998
CENTRAL REFERENCE AREA						
Upper North Platte River	724	539	539	540	0%	384
Big Horn River	1,420	1,642	1,360	1,360	0%	1,051
Wind River	1,936	2,183	1,277	1,525	19%	1,333
Sweetwater River	575	769	769	463	-40%	282
TOTAL	4,655	5,133	3,945	3,888	-1%	3,050
OVERALL TOTAL	8,634	9,917	8,261	7,720	-7%	9,048

Not all management areas are surveyed annually. To generate population estimages during all years, areas not surveyed during a year were assigned the most recent year's data. No visibility correction factor was used.
Source: WGFD. Unpublished data

Table 2. Counts of major molting areas within the Rocky Mountain Population of Canada geese[a].

LOCATION	2002-06	2006	2007	2008	2009	2010
WESTERN REFERENCE AREA	MEAN					
Yellowstone Lake	3,818	NS	NS	NS	NS	2,423
Yellowstone Meadows	978	NS	NS	NS	NS	335
Turbid Lake	288	NS	NS	NS	NS	815
Delusion Lake	28	NS	NS	NS	NS	19
Subtotal	5,112					3,592
Heart Lake	602	NS	NS	NS	NS	479
Jackson Lake	970	NS	NS	NS	NS	1,061
Subtotal	1,572					1,540
Sixty-Seven Reservoir	532	NS	NS	NS	NS	1,251
McNinch Res. # 1	113	NS	NS	NS	NS	363
Subtotal	645					1,614
Big Sandy Reservoir	1,651	NS	NS	NS	NS	1,042
Eden Reservoir	355	NS	NS	NS	NS	712
Subtotal	2,006					1,754
CENTRAL REFERENCE AREA						
Picket Lake Complex	460	NS	NS	NS	NS	821
Subtotal	460					821
Pathfinder Reservoir	220	NS	NS	NS	NS	417
Wheatland Res. # 2	6,980	NS	NS	NS	NS	7,623
Wheatland Res. # 3	3,199	NS	NS	NS	NS	1,950
Wheatland Reservoirs (2&3)	10,179	NS	NS	NS	NS	9,573
Subtotal	10,399					9,990
TOTAL	20,194					19,311

[a] After 1995, only flown every third year. After 2005, only flown every fifth year.
NF - not flown, NS - no survey.
Source: WGFD unpublished data.

Table 3. Direct[1] recoveries of Canada geese from the Rocky Mountain Population banded in Wyoming, 2004-09.

Banding Location	Banding Date	Number Banded	Band Returns					Direct Recovery Rate
			WY	CO	UT	Other	Total	
Ocean Lake	6/10/2004	70	9	1	0	0	10	14.3
Ocean Lake	6/14/2005	24	3	0	0	0	3	12.5
Wheatland Reservoir #3	6/15/2005	387	3	48	8	19	78	20.2
Big Sandy/Eden Reservoirs	6/20-21/06	575	43	21	11	8	83	14.4
National Elk Refuge, JH	7/1/2008	42	10	0	0	1	11	26.2
Total		1098	68	70	19	28	174	15.8

[1] Band returns through the first hunting season after banding.

Source: Bird Banding Laboratory Periodic Encounter Reports through August 2009.

Table 4. Early September hunting regulations for RMP Canada geese, 2000 - 2009.

	YEAR									
HUNT AREA	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 Bear River										
No. Permits	45	45	35	30	**	**	**	**	**	**
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit	3/6	3/6	3/6	3/6	2/4	2/4	2/4	2/4	2/4	2/4
2 Salt River										
No. Permits	60	60	40	30	**	**	**	**	**	**
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit	3/6	3/6	3/6	3/6	2/4	2/4	2/4	2/4	2/4	2/4
3 Eden/Farson										
No. Permits	65	65	55	45	**	**	**	**	**	**
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit	3/6	3/6	3/6	3/6	2/4	2/4	2/4	2/4	2/4	2/4
5 Teton County										
No. Permits	No quota limit					**	**	**	**	**
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit	3/6	3/6	3/6	3/6	2/4	2/4	2/4	2/4	2/4	2/4
7 Blacks/Smith Forks										
No. Permits	40	40	40	40	**	**	**	**	**	**
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit	3/6	3/6	3/6	3/6	2/4	2/4	2/4	2/4	2/4	2/4
8 Little Snake River										
No. Permits	*	*	*	20	**	**	**	**	**	**
Season Dates (Sept.)				1-8	1-8	1-8	1-8	1-8	1-8	1-8
Bag/Season Limit				3/6	2/4	2/4	2/4	2/4	2/4	2/4

* No Season.

** Early September hunt was Pacific Flyway wide.

Source: WGFD. Migratory game bird regulations.

Table 5. Harvest and hunter activity during the early September hunting season for RMP geese, 2000-09.

	YEAR									
HUNT AREA	2000	2001	2002	2003	2004[a]	2005[a]	2006[a]	2007[a]	2008[a]	2009[a]
1 Bear River										
No. Hunters	39	38	33	24	15	24	18	21	27	21
Hunter Days	88	69	48	52	29	47	27	44	51	44
Days/Hunter	2.2	1.8	1.3	2.2	1.9	2.0	1.5	2.1	1.9	2.1
Harvest	8	10	7	7	0	21	11	22	33	22
Birds/Hunter	0.21	0.26	0.21	0.29	0.00	0.88	0.61	1.00	1.2	1.00
2 Salt River										
No. Hunters	55	47	32	18	15	23	30	11	22	11
Hunter Days	127	118	84	49	48	59	87	29	45	29
Days/Hunter	2.3	2.5	2.6	2.7	3.2	2.6	2.9	2.6	2.1	2.6
Harvest	77	62	36	6	19	17	35	18	36	18
Birds/Hunter	1.40	1.42	1.13	0.33	1.27	0.74	1.17	1.60	1.6	1.60
3 Eden/Farson										
No. Hunters	62	53	53	38	35	43	73	54	69	54
Hunter Days	139	98	94	62	65	82	135	103	137	103
Days/Hunter	2.2	1.9	1.8	1.6	1.9	1.9	1.8	1.9	2	1.9
Harvest	112	113	108	86	38	27	88	40	73	40
Birds/Hunter	1.81	2.13	2.04	2.26	1.09	0.63	1.21	0.74	1.1	0.74
5 Teton County										
No. Hunters	104	67	89	90						
Hunter Days	241	117	177	184						
Days/Hunter	2.2	1.8	1.9	2.0						
Harvest	163	122.00	208	187						
Birds/Hunter	1.57	1.92	2.3	2.1						
7 Blacks/Smith Forks										
No. Hunters	13	16	27	29						
Hunter Days	22	27	57	49						
Days/Hunter	1.7	1.7	2.1	1.7						
Harvest	22	58	50	36						
Birds/Hunter	1.69	3.73	1.85	1.24						
8 Little Snake River										
No. Hunters	*	*	*	4						
Hunter Days				7						
Days/Hunter				1.8						
Harvest				9						
Bird/Hunter				2,25						
9 Uinta County										
No.Hunters	*	*	*	*	*	*	*	*	10	10
Hunter Days									20	22
Days/Hunter									2	2.2
Harvest									8	6
Birds/Hunter									0.8	0.60
TOTAL										
Permits Issued	333	302	292	292	86	110	161	110	150	150
No. Hunters	273	221	234	199	65	90	121	86	128	96
Hunter Days	617	429	460	396	142	188	249	176	253	198
Days/Hunter	2.2	2.0	2.0	2.0	2.2	2.1	2.1	2.1	2	2.0
Harvest	382	365	409	322	57	65	134	80	152	86
Birds/Hunter	1.40	1.65	1.75	1.62	0.88	0.72	1.11	0.93	1.2	0.90

[a]RMP greater sandill crane permit holders only.

* No Season.

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2001-2010.

Table 6. Canada goose harvest and hunter activity during the early season within the western reference area of the RMP.

	YEAR				
MANAGEMENT AREA	2005	2006	2007	2008	2009
5A Snake River					
No. Hunters	52	79	125	77	63
Hunter Days	131	208	204	173	153
Harvest	84	217	219	205	172
5B Upper Green River					
No. Hunters	31	16	49	49	35
Hunter Days	56	37	71	74	52
Harvest	57	31	78	27	28
5C Salt River					
No. Hunters	23	111	136	61	90
Hunter Days	67	296	280	111	248
Harvest	82	302	301	180	171
5D Lower Bear River					
No. Hunters	8	19	48	53	24
Hunter Days	23	40	124	130	54
Harvest	10	23	181	110	40
5E Great Divide Basin					
No. Hunters	2	12	0	3	11
Hunter Days	2	14	0	6	11
Harvest	5	40	0	3	11
5F Lower Green River					
No. Hunters	106	207	121	236	141
Hunter Days	230	393	257	528	332
Harvest	270	401	217	427	267
5G Ham's Fork-Black Fork					
No. Hunters	58	76	148	79	72
Hunter Days	92	231	291	160	134
Harvest	90	276	306	117	114
5H Upper Bear River					
No. Hunters	18	27	102	23	2
Hunter Days	35	66	137	36	8
Harvest	30	36	114	39	15
5H Little Snake River					
No. Hunters	0	0	10	7	12
Hunter Days	0	0	10	7	24
Harvest	0	0	10	0	0
TOTAL					
No. Hunters	298	547	739	589	450
Hunter Days	636	1285	1374	1221	1016
Days/Hunter	2.1	2.3	1.9	2.1	23
Harvest	628	1326	1426	1101	808
Birds/Hunter	2.11	2.42	1.93	1.86	1.18

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2010.

Table 7. Canada goose harvest and hunter activity during the regular season within the western reference area of the RMP [a].

	MEAN 2003-2007	MANAGEMENT AREA 2007	2008	2009	CHANGE BETWEEN 08 and 09	OBJECTIVE
		SNAKE RIVER				
No. Hunters	183	145	68	63	-7%	500
No. Rec. Days	815	449	261	153	-41%	2,800
Harvest	393	134	86	172	100%	500
		UPPER GREEN RIVER				
No. Hunters	127	139	69	35	-49%	350
No. Rec. Days	476	377	390	52	-87%	1,750
Harvest	227	297	52	28	-46%	438
		SALT RIVER				
No. Hunters	163	198	43	90	109%	800
No. Rec. Days	1,023	1,193	54	248	359%	3,304
Harvest	307	673	185	171	-8%	600
		LOWER BEAR RIVER				
No. Hunters	65	42	109	24	-78%	1,500
No. Rec. Days	308	158	391	54	-86%	7,500
Harvest	140	102	237	40	-83%	1,800
		GREAT DIVIDE BASIN				
No. Hunters	10	0	7	11	57%	100
No. Rec. Days	32	0	16	11	-31%	500
Harvest	20	0	3	11	267%	50
		LOWER GREEN RIVER				
No. Hunters	261	240	280	141	-50%	475
No. Rec. Days	1,373	1,955	1,450	332	-77%	2,375
Harvest	670	600	749	267	-64%	380
		HAM'S/BLACK'S FORK				
No. Hunters	132	139	163	72	-56%	370
No. Rec. Days	404	350	994	134	-87%	1,850
Harvest	275	174	462	114	-75%	444
		UPPER BEAR RIVER				
No. Hunters	82	125	81	2	-98%	370
No. Rec. Days	308	677	230	8	-97%	1,665
Harvest	101	179	3	15	400%	185
		LITTLE SNAKE RIVER				
No. Hunters	19	7	12	12	0%	100
No. Rec. Days	72	9	31	24	-23%	500
Harvest	35	9	0	0	0%	50
TOTALS FOR WESTERN REFERENCE AREA						
No. Hunters	1,042	1,035	832	450	-46%	4,565
No. Rec. Days	4,811	5,168	3,817	1,016	-73%	22,244
Harvest	2,168	2,168	1,777	818	-54%	4,447

[a] Data includes all goose species and may include early season harvest information.

Source: Annual Report of Upland Game and Furbearer Harvest, WGFD, 2004-2010.

Table 8. Canada goose harvest and hunter activity during the regular season within the central reference area of the RMP [a].

	MANAGEMENT AREA				CHANGE BETWEEN	
	MEAN 2003-2007	2007	2008	2009	08 and 09	OBJECTIVE
			UPPER NORTH PLATTE RIVER*			
No. Hunters	109	94	119	136	14%	330
No. Rec. Days	370	217	563	516	-8%	1,485
Harvest	157	158	414	205	-50%	660
			BIG HORN BASIN			
No. Hunters	942	944	982	895	-9%	1,200
No. Rec. Days	5,668	4,825	6,533	5,177	-21%	5,600
Harvest	3,775	3,414	5,595	4,988	-11%	1,200
			YELLOWSTONE RIVER			
No. Hunters	14	52	65	2	-97%	
No. Rec. Days	97	267	174	12	-93%	
Harvest	28	34	71	2	-97%	
			WIND RIVER			
No. Hunters	412	380	382	480	26%	1,200
No. Rec. Days	1,713	1,181	1,556	2,219	43%	4,200
Harvest	1,904	919	1,840	2,687	46%	1,600
			SWEETWATER RIVER			
No. Hunters	13	10	0	14	100%	100
No. Rec. Days	16	41	0	24	100%	450
Harvest	19	20	0	36	100%	60
TOTALS FOR CENTRAL REFERENCE AREA						
No. Hunters	1,490	1,480	1,548	1,527	-1%	2,830
No. Rec. Days	7,864	6,531	8,826	7,948	-10%	11,735
Harvest	5,883	4,545	7,920	7,918	0%	3,520

[a] Data includes all goose species.

* Calculated as 66% of the Upper North Platte River Management Area.

Source: Annual Report of Upland Game and Furbearer Harvest, WGFD, 2004-2010.

Table 9. Mid-winter surveys of the RMP of Canada geese in Wyoming.

MANAGEMENT AREA	2006	2007	2008	2009	2010
Wind River	2,845	6,648	1,231	8,337	1,697
Big Horn River	4,038	12,864	7,923	7,461	8,349
Upper North Platte River	0	0	34	0	248
CENTRAL REFERENCE AREA	6,883	19,512	9,188	15,798	10,294
Snake River	95	192	70	99	70
Salt River	77	163	49	28	49
Lower Green River	455	282	18	213	18
Upper Green River	0	0	10	0	10
WESTERN REFERENCE AREA	627	637	147	340	147
TOTALS	7,510	20,149	9,335	16,138	10,441

NF= Not Flown

Source: WGFD data.

SHORT GRASS PRAIRIE POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

The Short Grass Prairie Population (SGPP) nests on Victoria and Jenny Lind Islands and on the Canadian mainland from Queen Maud Gulf west and south to the Mackenzie River and northern Alberta. The MWS index in 2010 was 290,700, 32% higher than the 2009 index. In 2010, the estimated spring population in the NWT was 247,300, a 84% increase from 2009. Production is expected to be below average and the fall flight similar to 2009.

HARVEST

Harvest and hunter activity estimates for both Hi-Line and Short Grass Prairie Canada geese are summarized in Tables 2 and 3 of the Hi-Line Population of Canada Geese Job Completion Report. Percentages of HLP and SGPP geese harvested in the Central Flyway portion of Wyoming are listed in Table 1. A harvest objective has not been established for the SGPP. Harvest of this population increased last year. During the most recent 20-year period, 14% of the Canada geese harvested within the HLP range of the Central Flyway were SGPP geese. Canada geese of the Rocky Mountain Population are also present in the Central Reference of the Central Flyway in Wyoming.

WINTER SURVEY

Mid-Winter Waterfowl Survey
State and Federal agencies conduct the mid-winter waterfowl survey throughout the United States during the first week in January. The survey's purpose is to estimate continental waterfowl populations present during the winter period. Proportions of HLP and SGPP geese counted during January are summarized in Table 2. During the most recent 20-year period, 10% of the Canada geese counted within the HLP range of the Central Flyway were SGPP geese.

Ground classifications of large and small Canada geese were begun in 1999 in Carbon, Converse, Goshen, Natrona, and Platte counties (Table 3). Prior to 1999, hunter-provided samples consisting of at least 100 tail fans were used to estimate the percent of large and small Canada geese in the harvest and waterfowl surveys. This method was appropriate for harvest that occurred throughout the entire season. However, tail fan data are not appropriate for

estimating composition of "snapshot" waterfowl surveys. Furthermore, selection bias by hunters may favor larger geese.

RECOMMENDATIONS

1. Continue ground classifications during the mid-winter waterfowl survey to estimate proportions of HLP and SGPP Canada geese that are present.

Table 1. Derivation of Canada goose harvest within the HLP and SGP portion of Wyoming.[a]

Year	Goose Harvest[b]	Percent Hi-Line	Number Hi-Line	Percent Short Grass	Number Short Grass
1990	12,625	85	10,731	15	1,894
1991	11,549	89	10,279	11	1,270
1992	9,058	89	8,062	11	996
1993	9,466	96	9,087	4	379
1994	11,638	84	9,776	16	1,862
1995	19,219	83	15,952	17	3,267
1996	6,493	83	5,389	17	1,104
1997	16,553	82	13,573	18	2,980
1998	19,961	88	17,566	12	2,395
1999	13,064	83	10,843	17	2,221
2000	22,782	89	20,276	11	2,506
2001	17,831	78	13,908	22	3,923
2002	14,992	79	11,844	21	3,148
2003	15,918	90	14,326	10	1,592
2004	18,507	85	15,731	15	2,776
2005	43,622	84	36,642	16	6,980
2006	13,041	81	10,563	19	2,478
2007	11,370	88	10,006	12	1,364
2008	22,861	83	18,975	17	3,886
2009	15,785	96	15,154	4	631
Averages	16,317	86	13,934	14	2,383

[a] Percent HLP or SGP derived from CF wing bee data or ocular estimation. Tail fan data are representative of the entire dark goose season whereas ocular estimation is a one-time snapshot.

[b] Waterfowl management areas 1, 2, and 33% of 3.

Source: USFWS DMBM Wingbee and WGFD harvest data.

Table 2. Proportions of Hi-Line and Short Grass Prairie Canada geese counted during the mid-winter waterfowl survey, based upon wing bee data or ocular estimation.

Year	Goose Count	Percent Hi-Line	Number Hi-Line	Percent Short Grass	Number Short Grass
1991	24,032	85	20,427	15	3,605
1992	36,062	89	32,095	11	3,967
1993	29,121	89	25,918	11	3,203
1994	44,228	96	42,459	4	1,769
1995	27,750	84	23,310	16	4,440
1996	44,238	83	36,718	17	7,520
1997*	72,439	95	68,817	5	3,622
1998	37,927	82	31,100	18	6,827
1999*	29,432	87	25,606	13	3,826
2000*	39,689	90	35,720	10	3,969
2001*	50,219	98	49,214	2	1,005
2002*	23,427	93	21,764	7	1,663
2003*	21,992	90	19,812	10	2,180
2004*	40,379	89	35,877	11	4,502
2005*	40,448	94	38,022	6	2,426
2006*	63,844	88	56,184	12	7,660
2007*	16,472	94	15,418	6	1,054
2008*	10,482	94	9,876	6	606
2009*	46,324	91	42,154	9	4,170
2010*	44,248	96	42,477	4	1,771
AVERAGES		90		10	

*Ocular estimate

Source: WGFD unpublished data.

Table 3. Ground classification of large and small geese in Goshen, Platte, Converse, Natrona and Carbon counties.

County	Year		LARGE	SMALL	TOTAL	%LARGE	%SMALL
Carbon							
	2006		0	0	0	0.0	0.0
	2007	ND					
	2008		50	1	51	98.0	2.0
	2009		200	1	201	99.5	0.5
	2010	ND					
Converse							
	2006		1038	139	1177	88.2	11.8
	2007		44	0	44	100.0	0.0
	2008		336	2	338	99.4	0.6
	2009		599	9	608	98.5	1.5
	2010		166	0	166	100.0	0.0
Goshen							
	2006		3331	708	4039	82.5	17.5
	2007		378	37	415	91.1	8.9
	2008		246	30	276	89.1	10.9
	2009		2633	310	2943	89.5	10.5
	2010		3130	110	3240	96.6	3.4
Natrona							
	2006		472	0	472	100.0	0.0
	2007		994	25	1019	97.5	2.5
	2008		589	16	605	97.4	2.6
	2009		1081	35	1116	96.9	3.1
	2010		660	8	668	98.8	1.2
Platte							
	2006		7277	817	8,094	89.9	10.1
	2007		266	53	319	83.4	16.6
	2008		718	70	788	91.1	8.9
	2009		1526	240	1766	86.4	13.6
	2010		1656	98	1754	94.4	5.6
Total							
	2006		12118	1664	13782	87.9	12.1
	2007		1682	115	1797	93.6	6.4
	2008		1939	119	2058	94.2	5.8
	2009		6039	595	6634	91.0	9.0
	2010		5612	216	5828	96.3	3.7

ND - No data.

Source: WGFD unpublished data.

WESTERN CENTRAL FLYWAY POPULATION OF LIGHT GEESE

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

This population includes primarily lesser snow geese and a substantial proportion of Ross's geese. These geese breed in the central and western Canadian Arctic; large nesting colonies are present at Queen Maude Gulf and Banks Island. In 2010, areas near Queen Maud Gulf held persistent snow cover compared to other nesting areas lying east and west. Nesting phenology in the Queen Maude Gulf Sanctuary was delayed 4-5 days and goose production was expected to be below average again for the fourth consecutive year. Banks Island had a strong snow goose nesting effort and good gosling production was expected. Snow goose production is expected to be below average, but likely better than last year.

HARVEST

Hunting regulations for light geese, during the most recent 10-year period are summarized in Table 1. The light goose season has remained closed in the Pacific Flyway portion of Wyoming due to limited numbers of light geese present in that area and the potential for accidental harvests of resident trumpeter swans. Light goose harvests within the Central Flyway portion of Wyoming, during the most recent 20-year period are summarized in Table 2.

CONSERVATION ORDER

The Department implemented the light goose conservation order for the 10th consecutive year in 2010 (Tables 1, 2 and 3). Use of electronic callers and hunting one-half hour after sunset were allowed. However, Wyoming statute prohibits hunters from using unplugged shotguns capable of holding more than 3 shells. Participants were required to purchase a Conservation Order Special Management Permit and complete a survey card provided with the permit.

Eighty- six hunters harvested 230 light geese. The survey was not refined enough to distinguish geese that were harvested with electronic callers from those shot after sunset. However, these special provisions did increase harvest. Participation and harvest have declined significantly during the last two years, most likely the result of a smaller juvenile segment of the population, increasing wariness of light geese, and inclement weather during March.

WINTER SURVEY

Mid-Winter Waterfowl Survey

State and Federal agencies conduct the mid-winter waterfowl survey during the first week in January to estimate the continental populations of wintering waterfowl throughout the United States. Mid-winter survey counts of the West Central Flyway light goose population are summarized in Table 4. Generally, very few light geese are present in Wyoming during December and January.

WCFP geese are surveyed annually in the U.S. portion of their winter range, but the entire range, which includes Mexico, is surveyed only once every 3 years. The Mexican survey that was scheduled for 2009 was not conducted due to sociopolitical unrest in that country. In the U.S. portion of the survey, 238,100 geese were counted in January 2010, 16% fewer than last year. Population indices have increased 11% per year during 2001-2010.

RECOMMENDATIONS

1. Continue to implement the light goose conservation order in Wyoming.

2. Continue to maintain liberal seasons and bag limits.

Table 1. Hunting regulations for light geese within the Central Flyway portion of Wyoming.

	HUNTING SEASON									
	2000/01	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10
Regular Season Dates	10/7-12/31 1/19-2/8	10/6-12/31 1/27-2/143	10/5-12/31 1/27-2/13	10/4-12/31 1/27-2/12	10/2-12/31 1/27-2/10	10/1-12/31 1/27-2/9	10/7-1/7 1/27-2/8	10/6-1/1 1/26-2/12	10/4-1/1 1/26-2/9	10/3-12/27 1/21-2/8
Total Days	107	107	107	107	107	107	107	107	107	107
Bag/Possession Limits	10/40	10/40	10/40	10/40	10/40	10/40	10/40	10/40	10/40	10/40
Conservation Order	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Season Dates	3/1-3/31	3/1-3/31	3/1-4/6	2/23-4/4	2/21-4/3	2/20-4/2	2/19-4/8	2/25-4/13	2/23-4/12	2/22-4/11
Bag/Possession Limits	20/none	20/none	20/none	20/none	20/none	20/none	20/none	20/none	20/none	20/none

Special Youth Waterfowl Hunting Days are included in total days, but not displayed.
Source: WGFD. Migratory game bird regulations.

Table 2. Light goose harvest within the Central Flyway portion of Wyoming.

Year	Wyoming Data[a]	FWS Data/Regular Season	Conservation Order
1990	N/D	4	
1991	N/D	56	
1992	N/D	0	
1993/94	N/D	0	
1994/95	N/D	133	
1995/96	N/D	0	
1996/97	N/D	299	
1997/98	529	266	
1998/99	1845	1811	
1999/00	1326	633	
2000/01	875	119	875
2001/02	3047	0	1215
2002/03	ND	0	1775
2003/04	ND	325	1364
2004/05	ND	0	1070
2005/06	ND	0	2622
2006/07	ND	0	928
2007/08	ND	43	1019
2008/09	ND	0	845
2009/10	ND	66	230

[a]Wyoming harvest data is for February and March only.

N/D - No data.

Source: USFWS Light geese in the Central Flyway October 2009 and Preliminary harvest estimates 2008 and 2009, and WGFD data.

Table 3. Harvest and hunter activity for the Wyoming 2010 light goose conservation order.				
	Season			
	February 22 - April 11			
Permits Sold (excludes known collector purchases)	124			
Total Survey Respondents	95			
% Responded	77%			
Active Hunters	86			
Total Days Hunted	285			
Days/Hunter	3.3			
Geese Harvested	230			
Harvest/Hunter	2.7			
Hunters using Electronic Callers	59			
Harvest by Hunters using Electronic Callers	200			
Average Harvest of Hunters using Callers	3.4			
Total Days Hunting by Hunters Using Electronic Callers	197			
Total Days Hunting with Electronic Callers	184			
Average Days Electronic Calls were used	3.1			
% Days Caller Hunters Used Electronic Callers	93.4			
Hunters Hunting After Sunset	35			
Harvest by Hunters Hunting After Sunset	15			
Average Harvest of After Sunset Hunters	0.4			
Total Days Hunting by Hunters Hunting After Sunset	127			
Total Days Hunting After Sunset	100			
Average Days Hunting After Sunset	2.9			
% Days After Sunset Hunters Hunted After Sunset	78.7			
Hunters Using Callers and Hunting After Sunset	36			
% of Hunters Hunting in Goshen County	99.0			
Incomplete survey responses were treated as non-responses. Projected totals are the initial responses plus the nonresponse				
bias estimators. Non-bias estimation as applied here is the projection of second responses on to nonrespondents.				
For example, Active Hunters = (second respondents that hunted/second respondents)(permits analyzed - initial responses)				
Source: WGFD unpublished data.				

Table 4. Light geese counted during the mid-winter waterfowl survey in Wyoming.

Year	Geese
1970	0
1971	0
1972	0
1973	0
1974	0
1975	0
1976	0
1977	0
1978	0
1979	0
1980	0
1981	0
1982	0
1983	0
1984	0
1985	0
1986	0
1987	0
1988	0
1989	0
1990	0
1991	1
1992	0
1993	0
1994	0
1995	0
1996	0
1997	188
1998	3
1999	1
2000	0
2001	1
2002	1
2003	1
2004	2
2005	3
2006	0
2007	1
2008	2
2009	4
2010	3

Source: USFWS. Light geese in the CF October 2009. USFWS and WGFD mid-winter survey reports.

ROCKY MOUNTAIN POPULATION OF GREATER SANDHILL CRANES

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Joe Bohne, Staff Biologist, Larry Roberts, Migratory Game Bird Biologist

RESULTS:

INTRODUCTION

Since 1982, greater sandhill cranes (Grus canadensis tabida) have been hunted during September in the Salt River and Lower Bear River management areas. In 1986, a hunting season was initiated in the Farson area of the Lower Green River and another hunt was initiated in the Riverton Project within the Wind River Basin in 1987. A hunt area was established in Big Horn and Park Counties in 1996. In 2008 another hunt area was established in Uinta County

The crane hunts were started to reduce crop depredations by staging cranes and to regulate population growth. Annual harvest levels for Wyoming are prescribed based on a harvest allocation formula in the *Management plan of the Pacific and Central Flyways for the Rocky Mountain Population of Greater Sandhill Cranes*, last revised in March, 2007. Based on shifts in the fall distribution of cranes, a smaller proportion of the crane population has been counted in Wyoming during fall surveys in the past 5 years. Based on the harvest allocation set forth in the revised crane plan, a smaller percentage of the harvest allocation for the Rocky Mountain population was available to Wyoming starting with the 2007 hunting season.

A contingency plan was adopted to protect endangered whooping cranes (*Grus americana*), which occasionally commingle with sandhill cranes on fall staging areas. No whooping cranes have been observed in sandhill crane hunt areas for at least 10 years.

Early September hunting seasons and management recommendations are evaluated in this report.

MANAGEMENT PLAN REVISION

The *Management plan of the Pacific and Central Flyways for the Rocky Mountain Population of Greater Sandhill Cranes* was revised in March 2007. The plan can be found on the Pacific and Central Flyway websites. The plan includes sections on life history, management objectives, population status, habitat status, management and research programs, recommended management procedures, and annual review and monitoring requirements.

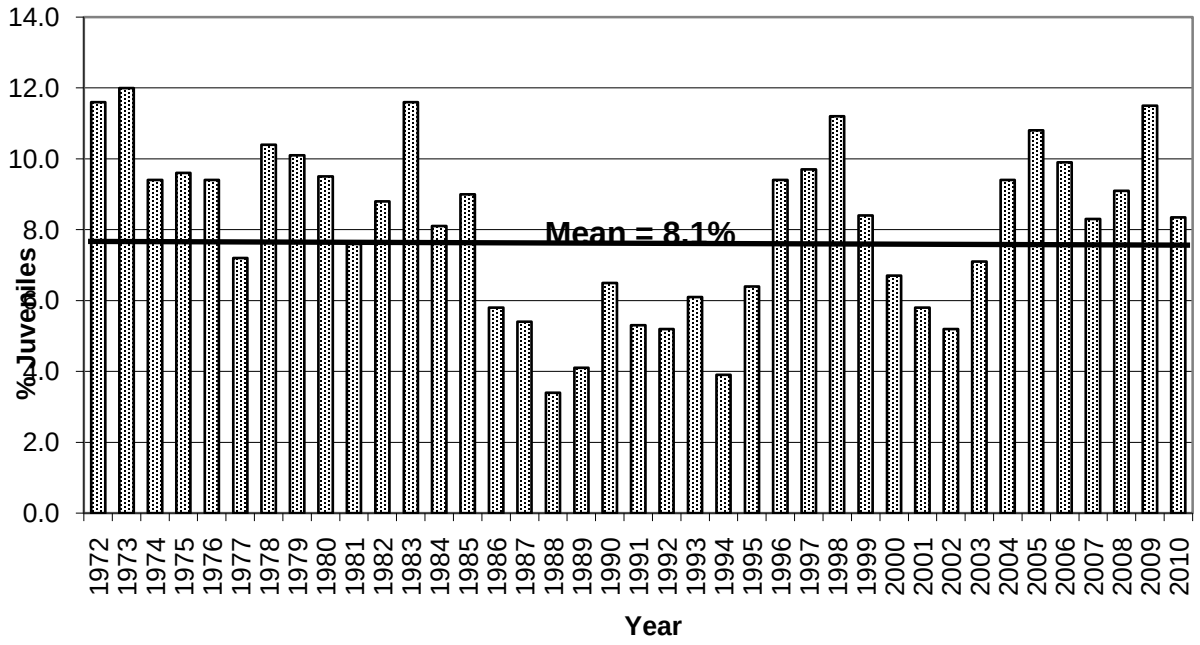
POPULATION STATUS

Table 1 summarizes the population data for the Rocky Mountain population from 1997- 2009. The 2006 survey was canceled because the U. S. Fish and Wildlife Service's survey aircraft had mechanical problems at the start of the survey. In 2005, 20,865 cranes were counted. In 2007 a record high count of 22,822 RMP cranes was tallied in 68 locations in the fall migration surveys (Drewin et al. 2009). The survey data suggest the population has been increasing in recent years. The 2007 count exceeded the objective level for this population (stable population index of 17,000-21,000 cranes determined by an average of the 3 most recent reliable September surveys) set by the Central and Pacific Flyways in the March 2007 revision to the *Management Plan of*

the Pacific and Central Flyways for the Rocky mountain Population of Greater Sandhill Cranes. In 2008, a total of 21,156 cranes were counted in the 2 flyways, slightly above the upper limit of the population objective. However, the 2009 survey total of 20, 321 cranes reflected a 4% decline from the previous year. The population remains within the objective range.

Annual production is surveyed by classifying the proportion of juveniles in the crane population staging in the San Luis Valley, Colorado in October. The proportion of juveniles in the surveys was relatively high from 2004 - 2006 (10.0% average). In 2007 the proportion of juveniles declined to 8.3%. In 2008 the proportion of juveniles observed at the San Luis Valley staging area was 9.1% juveniles and 11.5% in 2009. The three-year running average from 2007-2009 was 9.6%, well above the long term mean of 8.1%. Increased recruitment appears to be responsible for the increase in the population in recent years (Table 1, (Fig. 1 from Drewin et al 2009).

Fig. 1. Recruitment (% juv.) in Rocky Mountain Greater Sandhill Cranes, San Luis Valley, Colorado, 1972-2010



SEPTEMBER PRE-MIGRATION STAGING SURVEY BY STATE

Table 2 summarizes the September pre-migration survey data for this population from 1987–2009 by state (Drewin et al. 2009, Kruse et al 2008). Crane surveys conducted on primary fall staging areas in Wyoming are summarized in Table 3. The 2006 survey was cancelled due to mechanical problems with the survey aircraft used by the Service to count portions of western Wyoming and southeast Idaho. Some sections of the surveys run by WGFD personnel were

completed in 2006 but the data are incomplete for the flyway-wide survey. A total of 3,613cranes were counted in the RMP in 2009 in Wyoming. This total is slightly below the numbers observed in recent years; 3,826 cranes counted in Wyoming in 2008, 3,907 cranes counted in 2007 and 3,911 cranes counted in 2005. The highest count of cranes for the period of record was 4,205 in 1999. The data presented in Table 2 suggest the September crane counts in Wyoming and Montana are increasing while the counts in Idaho and Colorado are declining. The number of cranes counted in Utah appears to be relatively stable.

The fall survey data for Wyoming indicate crane numbers have been on a declined in the Lower Bear River Valley and Star Valley since 1984. Although increases in cranes counted in both survey areas were observed in 2007, the counts dropped again in 2008. Numbers increased slightly in Star Valley in 2009 but declined in the Bear. River Valley (Fig.A1 and A2 from Drewin et al 2009) .

However, it is important to remember that the crane counts in the Pacific flyway (western reference area) come after the early goose and crane seasons have been concluded. Some preliminary, late August counts of cranes coming off roosts in the Upper Salt River and the Big Sandy/Eden Reservoirs suggest crane numbers may be higher just prior to the hunts than just after the hunts in these two areas. The declining trends in the crane counts in the Salt river and Upper Bear river may not be indicative of cranes actually in the areas at the start of the early goose and crane hunts.

Counts fluctuate annually and such fluctuations are related to changes in population size, distribution, changes in survey areas, and visibility conditions during the counts. Drought conditions affect chick production and survival, which impact population size. Drought conditions, fall weather patterns, and long-term habitat changes caused by subdivision development and farming practices (changes in grain crop production) affect food availability and habitat selection in staging areas. These changes in habitat conditions are thought to result in shifts in the annual and long term distribution of cranes counted in the fall survey of staging areas.

Early hunting seasons are designed to reduce crop depredation by shifting the fall distribution of cranes over time. The limited harvest of cranes has a minimal impact on numbers of cranes that nest in Wyoming but crane hunts and the concurrent general early goose hunt in the Pacific Flyway portion of Wyoming may account for some changes in fall distribution (Rod Drewien, pers. com.). Some annual variation is also the result of the observers' ability to see cranes due to light and flying conditions, and whether the birds are aggregated in flocks or widely dispersed in the survey areas. Since the fall survey is a key determinant of the harvest allocation required by the management plan, it is incumbent on all agencies to conduct adequate annual surveys.

Fig. A1. Star Valley, WY

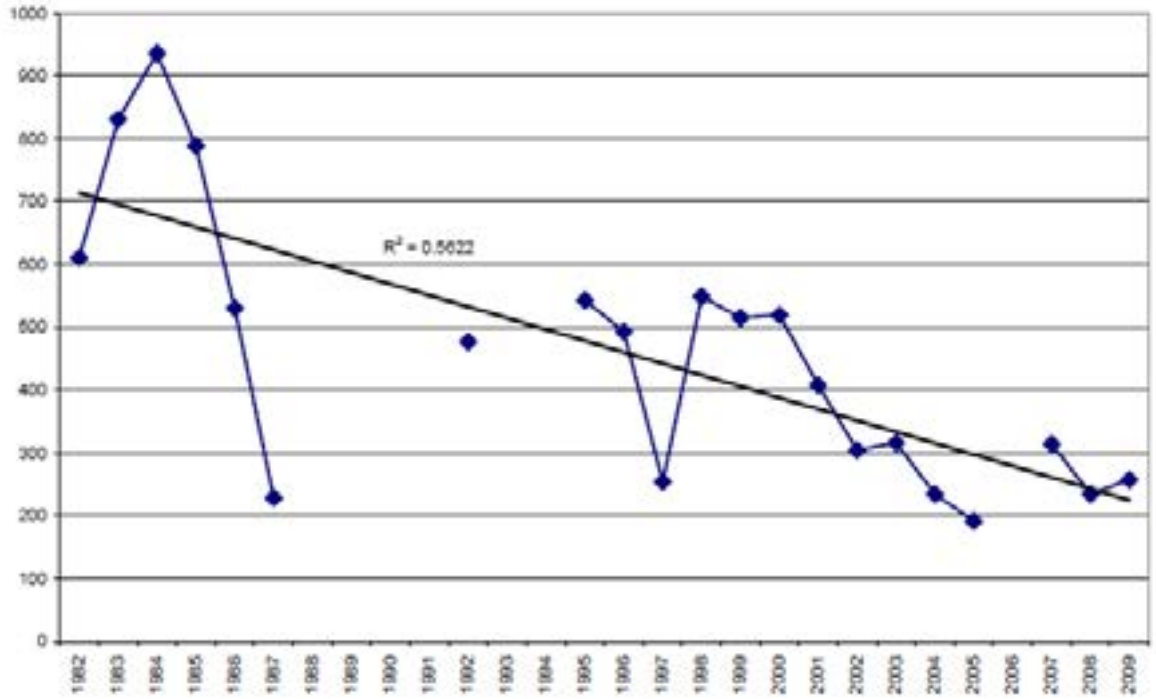
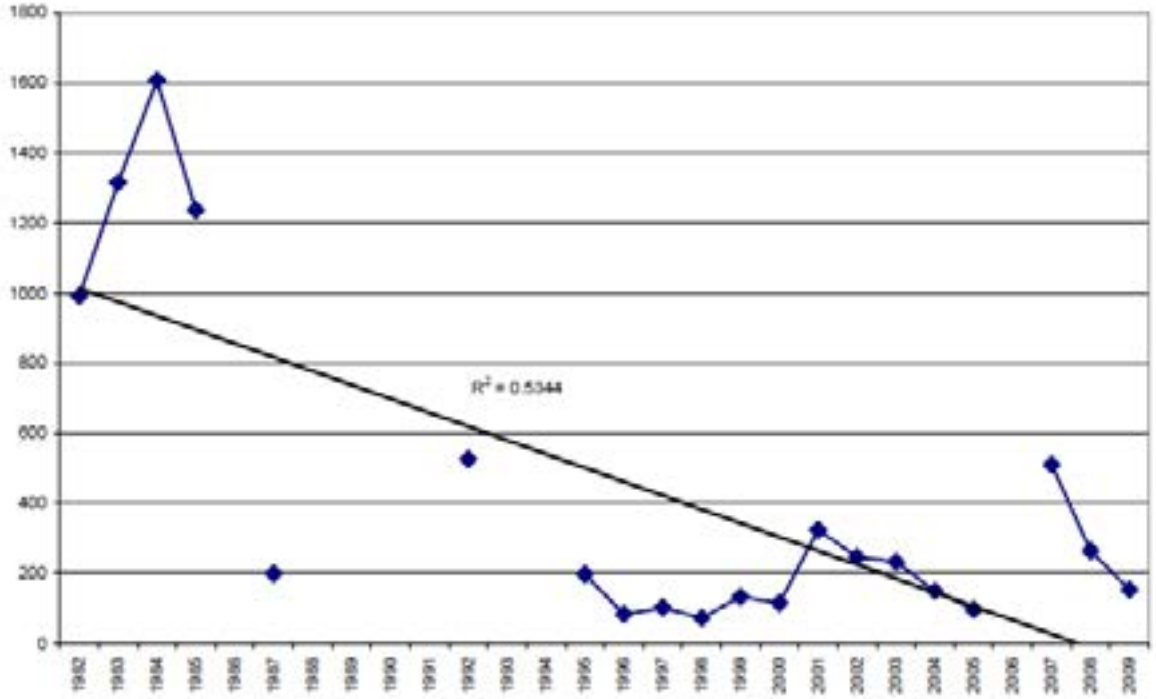


Fig. A2. Bear River Valley, WY



Crane numbers have been increasing in the Farson area with a high count of 1,957 cranes observed in 2008, although the count declined by 494 birds in 2009. Counts have fluctuated in the Bighorn Basin but overall the trend had been increasing through 2007 and the distribution of staging cranes has expanded. The area near Worland was added to the Bighorn Basin survey area in 2007. Declines were observed in the Bighorn Basin count blocks in 2009. Crane numbers in both the Wind River and Bighorn survey areas appear to peak after the surveys are completed with the influx of birds, presumably from Montana. Increasing crane numbers have also been documented in the Hams Fork and Bridger Valleys where few cranes were observed prior to 2000. Counts declined in both areas in 2008 and increased slightly in 2009 but remained well below the previous high counts (Table 3).

CRANE HARVEST

The Pacific and Central Flyway Management Plan for the Rocky Mountain Population of Sandhill Cranes allows for the regulated harvest of cranes when the population exceeds 15,000, as estimated by the mean of the 3 most recent reliable surveys conducted on the fall pre-migration staging areas. The management plan uses a prescriptive model to allocate annual harvest among states. All the states hunting this population have benefited by the improved population status, which has resulted in an increase in crane permits in 2004-2006. Recent regulations for hunting RMP cranes in Wyoming are summarized in Table 4. The permit allocation in Wyoming increased as a result of an increase in the total fall counts of the Rocky Mountain population and improvement in the proportion of juveniles in the fall population over the last 4 years.

In 2006, the number of permits was increased in all hunt areas reflecting an increasing population in recent years and good annual chick recruitment. Since the 2006 fall RMP survey was not completed, the calculations for the 2007 harvest allocation were essentially the same as the 2006 harvest allocation for the RMP of Greater Sandhill Cranes (1,321). The 2008 harvest allocation increased to 1,663 for the population and increased again in 2009 to 1,939 cranes. The calculations for the 2009 allocation are included in Appendix 1.

Due to declines in the proportion of cranes counted in Wyoming in t years prior to 2007 , the proportion of harvest allocated to Wyoming by the protocol in the management plan was reduced, resulting in an allowable harvest of 131 greater sandhill cranes for the 2007 seasons compared to 209 in 2006. In 2008, the harvest allocation for Wyoming increased to 165 cranes and increased again to 192 cranes in 2009. Accounting for average hunter success, the Department issued 387 permits for the 2009 crane seasons compared to 330 permits in 2008, 266 permits in 2007, and 401 permits in 2006. A summary of the permit allocation by hunt area is provided in Table 4.

An experimental hunt area (Uinta County) was added in 2008 with a small number of permits (10) to evaluate landowner and hunter response to this new management option. Boundaries of two other hunt areas were expanded. Area 1 (Bear River drainage in Lincoln County) was enlarged to also include the Hams Fork drainage in Lincoln County. Area 6 in the Bighorn Basin was enlarged to include all of Park, Bighorn, Hot Springs and Washakie Counties.

During the 2009 season, 303 hunters harvested 195 cranes in the six hunt areas. Permit success ranged from 20% in Area 5 (Uinta) to 60% in Area 1 (Bear River). The harvest rate for active hunters ranged from 0.25 cranes per hunter in Area 5 (Uinta) to 0.79 cranes per hunter in Area 4 (Riverton) (Table 5).

Table 6 summarizes the harvest statistics for Wyoming from 1999 to 2009. The 2009 harvest rate for Wyoming was 0.64 cranes per hunter. The 2008 harvest rate was 0.58 birds per hunter, slightly below the 0.65 birds per active hunter reported in 2007 and 0.64 birds per hunter in 2006. The 1999-2008 average harvest rate was 0.61 cranes per hunter. Harvest rates continue to fluctuate in the 6 hunt areas in Wyoming.

Changes in total harvest appear to be a function of permit numbers and crane availability in any given year. Over the last 3 years, harvest rates have been fairly stable in Hunt Areas 4 and 6 but have fluctuated annually in the other areas. Shifts in crane distribution are likely responsible for some reductions in harvest and hunter success. Land use changes, changes in grain crop distribution, and reduced hunter access on private land appear to be factors affecting crane availability and hunter success in some hunt areas, particularly in the Bear River and Star Valley hunt areas.

RECOMMENDATIONS

1. Continue surveys of fall pre-migration staging areas.

2. Continue mail survey to estimate harvest and hunter activity.

3. Work with the Central and Pacific Flyways to assure Wyoming receives a fair allocation of permits as a result of changes in the RMP Greater Sandhill Crane Management Plan. The allocation protocol in the management plan is supposed to be revisited every 5 years and the average of the proportion of cranes counted in each state should be recalculated for the 5 year period from 2007-2011 to set the proportions used in the crane allocation formula for the next 5 years (2012-2016).

4. Monitor the expansion of hunt area boundaries in the Bighorn Basin (Area 6) Area 1 (Bear River) to determine if these changes produce more hunting opportunity and address depredation complaints as crane numbers increase and their fall distribution expands in Wyoming.

5. Monitor Hunt Area 5 in Uinta County to determine if this new hunt area creates more hunting opportunity and addresses depredation complaints as crane numbers increase and their fall distribution expands in Wyoming. Monitor population trend data to determine if this hunt area expansion is appropriate in the near future.

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Table 1. Population data for the Rocky Mountain Population of Greater Sandhill Cranes 1997-2009.

Year	September Total Pre-migration	% Juvenile Fall, San Luis Valley	3-Year Mean	Total Allowable Harvest
1997	18,036	9.7	8.5	632
1998	18,202	11.2	10.1	693
1999	19,501	8.4	9.9	974
2000	19,990	6.7	8.8	1,141
2001	16,559	5.8	7.0	1,175
2002	18,803	5.2	5.9	833
2003	19,523	7.1	6.0	668
2004	18,510	9.4	7.2	656
2005	20,865	10.8	9.1	906
2006	Cancelled	9.9	10.0	1,321
2007	22,822	8.3	9.7	1,321
2008	21,156	9.1	9.1	1,663
2009	20,321	11.5	9.6	1,939

Table 2. September premigration staging area counts by state of the Rocky Mountain population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-09.

Year	Colorado[a]	Idaho	Montana	Utah	Wyoming	Total
1987	1,443	10,686	1,447	1,578	2,327	17,481
1992	3,181	5,801	5,264	2,810	2,248	19,304
1995	2,284	6,864	3,681	1,528	1,671	16,028
1996	1,255	8,334	2,974	1,849	2,526	16,938
1997	1,604	8,132	3,595	2,450	2,255	18,036
1998	1,273	8,067	3,415	2,185	3,162	18,102
1999	1,102	8,761	3,141	2,292	4,205	19,501
2000	749	9,337	3,598	2,416	3,890	19,990
2001	666	7,160	4,585	1,522	2,626	16,559
2002	1,355	7,698	4,843	1,869	3,038	18,803
2003	745	7,822	4,964	2,546	3,446	19,523
2004	1,410	7,152	4,637	2,236	3,072	18,507
2005	1,052	7,668	5,588	2,646	3,911	20,865
2007	1,743	8,262	6,509	2,401	3,907	22,822
2008	1,080	6,123	6,419	3,708	3,826	21,156
2009	1,162	6,934	6,329	2,283	3,613	20,321
Mean	1,382	7,800	4,437	2,270	3,108	18,996

[a]Colorado counts include migrants that had arrived at the staging area in the San Luis Valley.

Table 3. Surveys of primary fall staging areas used by the RMP of greater sandhill cranes in Wyoming, 2002-2009.

Primary Staging Area	Responsible Agency	Year and (Survey Date)	Total Count (Aerial or Ground)
Lower Bear River Valley	USFWS		
		2004(9/14)	149(Aerial)
		2005(9/13)	96(Aerial)
		2006	NS
		2007(9/10)	510(Aerial)
		2008 (9/15)	264 (aerial)
		2009(9/15)	153 (Aerial)
Star Valley (Salt River)	USFWS		
		2004(9/16)	234(Aerial)
		2005(9/15)	191(Aerial)
		2006	NS
		2007(9/12)	314(Aerial)
		2008(9/16)	234(Aerial)
		2009(9/17)	257 (Aerial
Farson-Eden	USFWS		
		2004(9/14)	1,256(Aerial)
		2005(9/13)	1,382(Aerial)
		2006	NS
		2007(9/13)	1,431(Aerial)
		2008(9/15)	1,957(Aerial)
		2009 (9/14)	1,463(Aerial)
Boysen-Riverton (Wind River)	WGFD		
		2004(9/14)	275(Aerial)
		2005(9/14)	348(Aerial)
		2006(9/12)	269(Aerial)
		2007(9/12)	433(Aerial)
		2008(9/16)	133(Aerial)
		2009(9/17)	345(Aerial)
Greybull River Valley	WGFD		
		2004(9/15)	179(Aerial)
		2005(9/13)	437(Aerial)
		2006(9/12)	365(Aerial)
		2007(9/12)	374(Aerial)
		2008(9/16)	481(Aerial)

		2009(9/16)	283(Aerial)
Table 3. Continued			
	Responsible	Year and	Total Count
Primary Staging Area	Agency	(Survey Date)	(Aerial or Ground)
Shoshone River Valley	WGFD		
		2004(9/15)	680(Aerial)
		2005(9/16)	938(Aerial)
		2006(9/12)	822(Aerial)
		2007(9/12)	386(Aerial)
		2008(9/16)	196(Aerial)
		2009 (9/16)	389 (Aerial)
Worland	WGFD	2006	NS
		2007(9/12)	24(Aerial)
		2008(9/16)	201(Aerial)
		2009 (9/16)	215(Aerial)
Big Piney	USFWS		
		2004(9/14)	58(Aerial)
		2005(9/13)	3(Aerial)
		2006	NS
		2007(9/13)	46(Aerial)
		2008(9/15)	138(Aerial)
		2009(9/14)	91(Aerial)
Bridger Valley			
	WGFD		
		2004(9/16)	43(Ground)
		2005(9/16)	273(Ground)
		2006(9/15)	159(Ground)
		2007(9/12)	116(Ground)
		2008(9/16)	42(Ground)
		2009(9/15)	51(Ground)
Lonetree	WGFD	2006	NS
		2007(9/14)	50(Ground)
		2008	NS
		2009	NS
Hams Fork	USFWS		
		2004(9/14)	24(Aerial)
		2005(9/13)	161(Aerial)
		2006	NS
		2007(9/10)	149(Aerial)
		2008(9/15)	51 (Aerial)
		2009(9/14)	90(Aerial)

Table 3. Continued			
	Responsible	Year and	Total Count
Primary Staging Area	Agency	(Survey Date)	(Aerial or Ground)
Little Snake River Valley	WGFD		
		2004(9/14)	0(Ground)
		2005(9/13)	5(Ground)
		2006(9/13)	0(Ground)
		2007(9/10)	2(Ground)
		2008(9/16)	0(Ground)
		2009(9/17)	2(Ground)
Pinedale-Cora	USFWS		
		2004(9/14)	2(Aerial)
		2005(9/13)	35(Aerial)
		2006	NS
		2007(9/13)	8(Aerial)
		2008(9/15)	0(Aerial)
		2009(9/14)	45(Aerial)
Seedskadee NWR	USFWS		
		2004(9/15)	3(Ground)
		2005(9/14)	0(Ground)
		2006	NS
		2007(9/13)	0(Ground)
		2008(9/15-9/16)	0(Ground)
		2009(9/15-9/16)	4(Ground)
Upper North Platte River	WGFD		
		2004(9/15)	85(Ground)
		2005(9/14)	2(Ground)
		2006(9/13)	24(Ground)
		2007(9/13)	
		2008(9/16)	11(Ground)
		2009(9/17)	5(Ground)
Jackson Hole	Jackson Hole		
	Bird Club		
		2004(9/15)	84(Ground)
		2005(9/15)	40(Ground)
		2006	NS
	USF&WS	2007(9/11-9/12)	64(Ground)
	USF&WS USF&WS	2008(9/18) 2009(916)	118(Ground) 220(Ground)

Table 4. Recent hunting regulations for the RMP of sandhill cranes.

	YEAR									
HUNT AREA	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 Bear River										
No. Permits	45	45	35	30	20	26	42	25	30	30
Season Dates (Sept.)	1-14	1-14	1-14	1-14	1-14	1-8	1-8	1-8	1-8	1-8
Season Limit	1	1	1	1	1	1	1	1	1	1
2 Salt River										
No. Permits	60	60	40	30	20	26	42	26	25	31
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Season Limit	1	1	1	1	1	1	1	1	1	1
3 Eden/Farson										
No. Permits	65	65	55	45	45	56	94	60	85	106
Season Dates (Sept.)	1-7	1-7	1-7	1-8	1-8	1-8	1-8	1-8	1-8	1-8
Season Limit	1	1	1	1	1	1	1	1	1	1
4 Riverton										
No. Permits	60	60	55	45	60	70	116	75	85	100
Season Dates (Sept.)	16-30	15-30	21-30	20-30	18-30	17-30	16-30	15-30	13-30	13-30
Season Dates (Oct.)	1-6	1-5	1-11	1-10	1-8	1-7	1-6	1-8	1-3	1-3
Season Limit	1	1	1	1	1	1	1	1	1	1
5 Uinta										
No. Permits									10	10
Season Dates (Sept.)									1-8	1-8
Season Limit									1	1
6 Big Horn/Park										
No. Permits	65	65	55	45	60	74	124	80	95	110
Season Dates (Sept.)	16-30	15-30	21-30	20-30	18-30	17-30	16-30	15-30	13-28	13-28
Season Dates (Oct.)	1		1-6	1-8	1-8	1-2	1			
Season Limit	1	1	1	1	1	1	1	1	1	1

Source: WGFD. Early migratory game bird hunting regulations.

Table 5. Harvest and hunter activity during the 2009 hunting season for the RMP of greater sandhill cranes.

	HUNT AREA						
	1	2	3	4	5	6	TOTALS/
	BEAR RIVER	SALT RIVER	FARSON	RIVERTON	Uinta	BIG HORN	AVERAGES
Harvest Allocation							192
Permits Issued	30	31	106	100	10	110	387
Active Hunters	24	22	83	73	8	93	303
Total Days Hunted	46	54	152	133	22	217	624
Days/Active Hunter	1.9	2.5	1.8	1.8	2.8	2.3	2.1
Adult Harvest	14	5	25	48	0	46	138
Juvenile Harvest	4	3	21	10	2	17	57
Unknown Age Harvest	0	0	0	0	0	0	0
Total Crane Harvest	18	8	46	58	2	63	195
Cranes per Active Hunter	0.75	0.36	0.55	0.79	,25	0.68	0.64
Permit Success	60.0%	25.8%	43.4%	58.0%	20%	57.3%	50.4%
Cranes Knocked Down but not Retrieved	0	0	2	0	0	3	5
Note: Due to rounding and computer decimal loads, area estimates may not equal totals.							
Source: WGFD unpublished data.							

Table 6. Harvest statistics from RMP Greater Sandhill Crane hunts.

	YEAR										
HUNT AREA	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
1 Bear River											
No. Hunters	29	39	38	33	24	15	24	18	21	27	24
Hunter Days	61	88	69	48	52	29	47	27	44	51	46
Days/Hunter	2.1	2.3	1.8	1.3	2.2	1.9	2	1.5	2.1	1.9	1.9
Harvest	19	26	20	16	4	12	14	12	9	17	18
Cranes/Hunter	0.66	0.67	0.53	0.48	0.17	0.76	0.58	0.67	0.43	0.63	0.75
2 Salt River											
No. Hunters	38	55	47	32	18	15	23	30	11	22	22
Hunter Days	105	127	118	84	49	48	59	87	29	45	54
Days/Hunter	2.8	2.3	2.5	2.7	2.7	3.3	2.6	3	2.6	2.1	2.5
Harvest	16	22	13	7	4	7	10	12	8	10	8
Cranes/Hunter	0.42	0.40	0.28	0.22	0.21	0.46	0.43	0.42	0.7	0.45	0.36
3 Eden/Farson											
No. Hunters	32	62	53	53	38	35	43	73	54	69	83
Hunter Days	69	139	98	94	62	65	82	135	103	137	152
Days/Hunter	2.2	2.2	1.9	1.8	1.6	1.9	1.9	1.9	1.9	2	1.8
Harvest	21	43	40	35	18	24	31	58	42	37	46
Cranes/Hunter	0.66	0.69	0.75	0.66	0.47	0.68	0.72	0.79	0.77	0.54	0.55
4 Riverton											
No. Hunters	44	51	52	44	33	55	48	83	65	70	73
Hunter Days	93	85	93	95	71	91	90	155	118	121	133
Days/Hunter	2.1	1.7	1.8	2.2	2.1	1.6	1.9	1.9	1.8	1.7	1.8
Harvest	36	30	35	34	27	37	28	55	45	45	58
Cranes/Hunter	0.82	0.59	0.67	0.77	0.83	0.66	0.58	0.66	0.69	0.64	0.79
5 Uinta											
No. Hunters										10	8
Hunter Days										20	22
Days/Hunter										2	2.8
Harvest										3	2
Cranes/Hunter										0.3	0.25
6 Big Horn											
No. Hunters	46	57	58	48	39	54	58	101	62	83	93
Hunter Days	103	117	184	116	114	110	152	276	124	191	217
Days/Hunter	2.2	2.1	3.2	2.4	2.9	2.1	2.6	2.6	2	2.3	2.3
Harvest	32	38	35	40	19	44	33	57	35	50	6.3
Cranes/Hunter	0.70	0.67	0.60	0.83	0.50	0.82	0.57	0.56	0.56	0.6	0.68

Table 6 continued. Harvest statistics from RMP Greater Sandhill Crane hunts.

			YEAR								
HUNT AREA	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
TOTAL											
Harvest Allocation	140	170	170	132	106	104	144	209	131	165	192
Permits Issued	245	297	298	242	195	206	254	401	266	330	387
No. Hunters	189	264	248	210	152	174	196	305	213	281	303
Hunter Days	431	556	563	437	348	343	430	687	418	562	624
Days/Hunter	2.3	2.1	2.3	2.1	2.3	2.0	2.2	2.3	2.0	2	2.1
Harvest	124	159	142	132	72	124	116	194	138	162	195
Cranes/Hunter	0.66	0.60	0.57	0.63	0.48	0.71	0.59	0.64	0.65	0.58	0.64

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 1999-2009, and unpublished WGFD data.

Appendix 1. 2009 RMP Sandhill Crane Harvest Allocation

Allowable Harvest = C x P x R x L x f where: C = Avg of **3** most recent, reliable **fall** population indices.
P = Avg proportion fledged chicks in **3** most recent years
R = 0.5 (estimated recruitment fledged chicks to breeding)
L = 0.8 (retrieval rate)
f = $(C/16{,}000)^3$ (harvest rate adjustment)

$C = \frac{20{,}865 + 22{,}822 + 21{,}156}{3} = 21{,}614$

$P = \frac{0.099 + 0.083 + 0.091}{3} = 0.091$

$f = (C/16{,}000)^3 = (21{,}614/16{,}000)^3 = 2.465$

2009 Harvest Allocation = 21,614 x 0.091 x 0.5 x 0.8x 2.465 = **1,939**
2008 Harvest Allocation = 20,577 x 0.095 x 0.5 x 0.8 x 2.127 = **1,663**
2007 Harvest Allocation = 19,633 x 0.091 x 0.5 x0.8 x 1.848 = **1,321**
2006 Harvest Allocation = 19,633 x 0.091 x 0.5 x 0.8 x 1.848 = **1,321**
2005 Harvest Allocation = 18,945 x 0.072 x 0.5 x 0.8 x 1.660 = **906**
2004 Harvest Allocation = 18,295 x 0.060 x 0.5 x 0.8 x 1.494 = **656**

2007 Allocation based on 2003, 2004, and 2005 fall count
2008 Allocation based on 2004, 2005, and 2007 fall count
2009 Allocation based on 2005,2007, and 2008 fall count

	Summer Range	Winter Range	Unused Colorado	Base Allocation Percent	Base Allocation	Total Allocation	
Colorado	2.70 %	5.80 %	---	8.5%	165	0	**(0)**
Idaho	22.00 %	---	(1.14%)	22.00 %	427	427+22	**(449)**
Montana	14.30 %	---	(0.76%)	14.30 %	277	277+15	**(292)**
Wyoming	9.40 %	---	(0.53%)	9.40 %	182	182+10	**(192)**
Utah	6.60 %	2.70 %	(0.76%)	9.30 %	180	180+15	**(195)**
Arizona	---	5.80 %	(0.83%)	5.80 %	113	113+16	**(129)**
New Mexico	---	28.00 %	(4.01%)	28.00 %	543	543+78	**(621)**
Mexico	---	2.70 %	(0.46%)	2.70 %	52	52+9	**(61)**
TOTALS	55.00 %	45.00 %	8.49%	100 %	**1,939**		**1,939**

*** Numbers in bold in parentheses assume no hunt will occur in Colorado in 2009. Colorado's winter allocation has been divided between winter range states and Colorado's summer allocation has been divided between summer range states.**

MID-CONTINENT POPULATION OF SANDHILL CRANES

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

SURVEYS

The Department does not survey this crane population. The MCP crane population remains stable and within established management objectives.

CRANE HARVEST

Recent hunting regulations and harvest statistics for mid-continent sandhill cranes are summarized in Table 1. During the 2009 season, 8 sandhill cranes were harvested. These cranes typically migrate through Wyoming in a few days and do not stage in predictable concentrations. The timing of migration varies from year to year. Consequently, most hunting is opportunistic.

During the 2009 hunting season, Wyoming was allowed to expand the hunt area to include that portion of Johnson County east of Interstate Highway 25 from the Natrona County line north to Interstate Highway 90 and east of Interstate Highway 90 from the intersection with Interstate Highway 25 to the Sheridan County line; and that portion of Sheridan County east of Interstate Highway 90.

There is concern that the crane harvest in the expanded hunt area would include an unknown proportion of sandhill cranes from the RMP of greater sandhill cranes. Wyoming was not required to check subspecies composition in the field, but the Department was asked to track hunter activity and harvest. There was no reported crane harvest in Johnson or Sheridan counties during the 2009 season (Table 2).

RECOMMENDATIONS

1). Continue season structure as it presently exists.

2). Continue monitoring the crane harvest in Johnson and Sheridan counties.

Table 1. Harvest statistics for recent hunting seasons for Mid-continent sandhill cranes.

YEAR	NUMBER OF PERMITS ISSUED	NUMBER OF ACTIVE HUNTERS	RETRIEVED HARVEST	SEASON DATES	TOTAL DAYS
2000	58	11	10	09/09 - 11/05	58
2001	72	13	7	09/15 - 11/11	58
2002	54	15	22	09/14 - 11/10	58
2003	50	10	7	09/13 - 11/09	58
2004	61	16	4	09/18 - 11/14	58
2005	68	24	16	09/17 - 11/13	58
2006	78	25	20	09/16 - 11/12	58
2007	58	19	20	09/15 - 11/11	58
2008	73	24	24	09/13 - 11/9	58
2009[a]	62	67	8	09/19 - 11/15	58
TEN-YEAR AVERAGE	57	16	13		

[a] Preliminary

Source: USFWS. Status and harvest of sandhill cranes; mid-continent and Rocky Mountain populations, 2010.

Table 2. Harvest statistics for Area 7 hunting of Mid-continent sandhill cranes, 2009.

County	NUMBER OF PERMITS ISSUED	ACTIVE CRANE HUNTERS[a]	NUMBER OF DAYS AFIELD	RETRIEVED HARVEST
Cambell		3	17	0
Converse		3	4	0
Crook		0	0	0
Goshen		23	77	5
Johnson		0	0	0
Laramie		10	17	0
Niobrara		0	0	0
Platte		10	52	3
Sheridan		3	13	0
Weston		0	0	0
Unknown		21	52	0
TOTAL	67	67	232	8

Source: USFWS. Division of Migratory Bird Management, Branch of Harvest Surveys, 2010.

[a] Totaling the individual courty numbers results in more hunters than indicated in the total number of hunters, some hunters hunted in more than one county.

CENTRAL MANAGEMENT UNIT OF MOURNING DOVES

PERIOD COVERED: September 1, 2009- August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

CALL COUNT SURVEY

Call-counts have been the chief index used to monitor mourning dove population status throughout the U.S. since 1953. The entire state of Wyoming is within the Central Management Unit (CMU). Fourteen states comprise the CMU.

During the 2009 and 2010 surveys, North Dakota, South Dakota, Nebraska and Kansas had the highest average numbers of doves heard per route (range 44.1 to 52.1). Nationally, the highest average counts are often from Kansas and South Dakota. Wyoming was the only state averaging fewer than 10 doves heard per route. The remaining states had intermediate values.

Dove abundance has not changed in the CMU over the last 10 years, but there is evidence it has decreased over the last 45 years. Texas is the only state with a decrease over the most recent 10 year period. During the 45-year period, North Dakota was the only state with an increase in dove abundance. In Minnesota, Nebraska, Missouri, and Texas, dove abundance decreased over the 45-year period.

GPS locations of call-count survey (CCS) routes in Wyoming are shown in Figure 5. Results of the 10 most recent call-count surveys are summarized in Table 1. This information is forwarded annually to the Office of Migratory Bird Management in Laurel, Maryland. Results are compiled in an Administrative Status Report available to the public by late July. In 2010, the numbers of doves heard and seen per mile were below the 10-year average. The number of routes surveyed was higher than the 10-year average.

TRAPPING AND BANDING STUDIES

The National Mourning Dove Task Force recommended all states not currently banding mourning doves begin a banding program in 2008. Regional banding data provides specific population information for each management unit to support implementation of both the Mourning Dove National Strategic Harvest Management Plan and relevant interim harvest strategies. In 2004, the USFWS SRC required a mourning dove harvest management strategy for each management unit. Wyoming was requested to band 153 after hatching year (AHY) and 116 hatching year (HY) (269 total) mourning doves each year for an indefinite number of years.

In 2010, allocation of available fiscal and personnel resources to address other Department priorities precluded all migratory game bird banding. Banding of mourning doves has been suspended indefinitely.

HARVEST

In Wyoming, weather conditions in late August and early September greatly influence dove harvests. Weather conditions were moderate in 2009 and flocks of doves remained in the state throughout September and most of October.

The dove harvest and the number of hunters decreased in 2009 compared to the year prior (Table 2). The number doves harvested per hunter was below the most recent 10-year average. We continue to rely on State harvest estimates, as confidence intervals of HIP-derived estimates for hunter activity and harvest continue to be excessively wide (Table 3). Although in 2009, the two estimates were similar.

RECOMMENDATIONS

1. Continue to conduct 18 mourning dove call-count routes in Wyoming.

2. Maintain historic hunting opportunity.

3. If possible, participate in the national dove banding program.

Figure 5. Location and number of mourning dove call-count survey routes in Wyoming that have been GPSed.

Table 1. Average number of mourning doves heard and seen during call-count surveys, 2001-2010.

Year	Doves Heard	Doves Seen	Routes Run
2001	8.9	7.1	13
2002	11.7	8.8	13
2003	8.3	8.1	15
2004	9.7	4.1	15
2005	6.8	2.5	16
2006	11.8	6.9	18
2007	10.1	4.1	15
2008	16.1	7.5	17
2009	12.7	5.2	17
2009	8.2	3.2	17
Ten-Year Average	10.4	5.8	15.6

Total number of routes to survey per year was 18.

Source: USFWS CCS Data and Wyoming Migratory Bird Completion Reports.

Table 2. Statewide mourning dove harvest in Wyoming.

YEAR	HUNTERS	HUNTER DAYS	DAYS/ HUNTER	DOVE HARVEST	DOVES/ HUNTER	BAG/ POSSESSION	SEASON LENGTH (DAYS)
2000	2,594	8,499	3.28	34,250	13.20	15/30	60
2001	2,807	8,371	2.98	29,075	10.36	15/30	60
2002	2,648	14,470	5.46	36,431	13.76	15/30	60
2003	2,078	5,978	2.88	27,837	13.40	15/30	60
2004	2,471	7,645	3.09	32,142	13.01	15/30	60
2005	3,194	9,080	2.84	44,280	13.86	15/30	60
2006	2,461	7,141	2.90	32,807	13.33	15/30	60
2007	2,351	8,256	3.51	36,670	15.60	15/30	60
2008	2,315	7,482	3.23	29,994	12.96	15/30	60
2009	1,949	5,598	2.87	22,278	11.43	15/30	60
TEN-YEAR AVERAGE	2,487	8,252	3.31	32,576	13.09		

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2001-2010.

Table 3. HIP estimates of mourning dove harvest and hunter activity in Wyoming.

YEAR	ACTIVE HUNTERS	DAYS AFIELD	DAYS/ HUNTER	DOVE HARVEST	HARVEST/ HUNTER
2000	4,100+/-39%	7,900+/-37%	1.93	44,100+/-41%	10.7+/-57%
2001	3,300+/-35%	8,000+/-41%	2.42	29,200+/-24%	8.9 +/- 43%
2002	2,800+/-30%	6,200+/-35%	2.21	30,300+/-47%	10.8 +/- 56%
2003[a]	3,000+/-40%	7,400+/-49%	2.47	39,600+/-76%	13.1+/-86%
2004[a]	3,200+/-27%	8,700+/-34%	2.72	43,700+/-46%	13.7+/-53%
2005[a]	2,500+/-27%	6,600+/-27%	2.64	34,100+/-31%	13.6+/-41%
2006[a]	2,300+/-29%	6,500+/-36%	2.83	29,500+/-37%	12.9+/-47%
2007[a]	4,000+/-20%	8,800+/-24%	2.20	42,600+/-27%	10.6+/-33%
2008[a]	2,500+/-25%	5,900+/-33%	2.36	30,100+/-36%	11.9+/-44%
2009[a]	2,300+/-27%	5,800+/-31%	2.52	20,600+/-31%	8.8+/-41%
TEN-YEAR AVERAGE	3,000	7,180	2.43	34,380	11.50

Source: USFWS. HIP final and preliminary[a] harvest estimates.

CENTRAL MANAGEMENT UNIT OF COMMON SNIPE

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

POPULATION SURVEY

Based on the most recent data from the North American breeding bird survey, snipe populations have increased in Wyoming, but generally decreased throughout the United States and Canada from 1966-2007.

HARVEST

Snipe hunting and harvest in Wyoming have varied markedly during the past 10 years (Table 1). Confidence intervals of HIP-derived estimates continue to be excessively wide (Table 2).

RECOMMENDATIONS

1. Maintain historic hunting opportunity.

2. Continue to support wetlands projects that provide habitat for common snipe.

Table 1. Snipe harvest and hunter activity in Wyoming during the most recent 10-year period.

YEAR	HUNTERS	HUNTER DAYS	DAYS/ HUNTER	SNIPE HARVEST	SNIPE/ HUNTER	BAG/ POSSESSION LIMITS	SEASON LENGTH (DAYS)
2000	164	386	2.35	425	2.59	8/16	107
2001	76	233	3.07	331	4.36	8/16	107
2002	126	508	4.03	179	1.42	8/16	107
2003	120	271	2.26	287	2.39	8/16	107
2004	106	255	2.41	221	2.08	8/16	107
2005	207	769	3.71	522	2.52	8/16	107
2006	191	504	2.64	532	2.79	8/16	107
2007	89	269	3.02	334	3.75	8/16	107
2008	175	612	3.50	403	2.30	8/16	107
2009	75	147	1.96	320	4.27	8/16	107
AVERAGES	133	395	2.89	355	2.85		

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2001-2010.

Table 2. HIP estimates of snipe harvest and hunter activity in Wyoming.

YEAR	ACTIVE HUNTERS	DAYS AFIELD	DAYS/ HUNTER	SNIPE HARVEST	SEASONAL SNIPE HARVEST/ HUNTER
2000	300+/-101%	1,000+/-111%	3.33	900+/-124%	2.8+/-160%
2001	100+/-171%	300+/-161%	3.00	440+/-147%	3.7+/-225%
2002	400+/-79%	700+/-73%	1.75	1,600+/-99%	4.4+/-127%
2003[a]	200+/-92%	400+/-92%	2.00	800+/-143%	3.8+/-170%
2004[a]	300+/-74%	500+/-66%	1.67	400+/-68%	1.4+/-101%
2005[a]	100+/-102%	300+/-90%	3.00	400+/-152%	2.8+/-183%
2006[a]	100+/-142%	300+/-174%	3.00	100+/-170%	1.7+/-222%
2007[a]	100+/-172%	100+/-136%	1.00	200+/-182%	2.8+/-250%
2008[a]	100+/-130%	200+/-109%	2.00	300+/-133%	1.8+/-186%
2009[a]	<50+/-71%	<50+/-92%	1.00	100+/-94%	6.8+/-118%
AVERAGES	175	385	2.18	524	3.20

Source: USFWS. HIP final and preliminary[a] harvest estimates.

CENTRAL MANAGEMENT UNIT OF VIRGINIA AND SORA RAILS

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

POPULATION SURVEY

Populations of Virginia rail have declined in some locations, particularly in the Midwest United States where wetland losses and degradation have been severe. Based on the most recent data from the North American breeding bird survey, Virginia rail populations have generally increased in the United States and Canada from 1966-2007. During the same period, sora rails increased in Wyoming and Canada, but decreased in the United States. Soras are the most abundant and widely distributed of the North American rails.

HARVEST

Rail harvest and hunting in Wyoming remained low during the past 10 years (Table 1). Confidence intervals of HIP-derived harvest estimates continue to be excessively wide (Table 2).

RECOMMENDATIONS

1. Maintain historic hunting opportunity.

2. Continue to support wetlands projects that provide habitat for rails.

Table 1. Rail harvest and hunter activity in Wyoming during the most recent 10-year period.

YEAR	HUNTERS	HUNTER DAYS	DAYS/ HUNTER	RAIL HARVEST	RAIL/ HUNTER	BAG/ POSSESSION LIMITS	SEASON LENGTH (DAYS)
2000	42	77	1.83	36	0.86	25/25	70
2001	5	19	3.80	70	14.00	25/25	70
2002	0	0	0.00	0	0.00	25/25	70
2003	24	66	2.75	37	1.54	25/25	70
2004	31	63	2.03	5	0.16	25/25	70
2005	90	168	1.87	74	0.82	25/25	70
2006	22	80	3.64	20	0.91	25/25	70
2007	41	75	1.83	12	0.29	25/25	70
2008	80	391	4.89	36	0.45	25/25	70
2009	10	42	4.20	8	0.80	25/25	70
AVERAGE	35	98	2.68	30	1.98		

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2001-2010.

Table 2. HIP estimates of rail harvest and hunter activity in Wyoming.

YEAR	ACTIVE HUNTERS	DAYS AFIELD	DAYS/ HUNTER	RAIL HARVEST	SEASONAL RAIL HARVEST/ HUNTER
2000	300+/-110%	800+/-121%	2.67	500+/-122%	1.7+/-164%
2001	<50+/-160%	<50+/-160%	1.00	<50+/-160%	5.0+/-266%
2002	0		0.00	0	0.0
2003[a]	0	0	0.00	0	0
2004[a]	<50+/-153%	<50+/-153%	1.00	<50+/-153%	1.0+/-216%
2005[a]	0	0	0.00	0	0
2006[a]	0	0	0.00	0	0
2007[a]	0	0	0.00	0	0
2008[a]	<50+/-160%	<50+/-160%	1.00	<50+/-160%	1.0+/-227%
2009[a]	0	0	0.00	0	0
AVERAGE	45	95	0.57	65	0.87

Source: USFWS. HIP final and preliminary[a] harvest estimates.

AMERICAN COOT POPULATION

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

POPULATION SURVEY

Based on the most recent data from the North American breeding bird survey, the coot population has decreased in Wyoming and Canada, and increased throughout the United States from 1966-2007.

HARVEST

Although the number of coot hunters and harvest decreased last year, hunter days increased (Table 1). For the most part, coots are not actively hunted in Wyoming and most harvest is incidental to other types of waterfowl hunting. Confidence intervals of HIP-derived estimates continue to be excessively wide (Table 2). The 10-year averages for the two surveys are similar for hunter numbers and harvest.

RECOMMENDATIONS

1. Maintain historic hunting opportunity.

Table 1. Coot harvest and hunter activity in Wyoming during the most recent 10-year period.

YEAR	HUNTERS	HUNTER DAYS	DAYS/ HUNTER	COOT HARVEST	COOTS/ HUNTER
2000	75	232	3.09	249	3.32
2001	134	303	2.26	353	2.63
2002	52	209	4.02	123	2.37
2003	113	525	4.65	463	4.10
2004	113	718	6.35	279	2.47
2005	143	412	2.88	163	1.14
2006	133	623	4.68	691	5.20
2007	143	1,068	7.47	660	4.62
2008	145	362	2.50	182	1.26
2009	102	551	5.40	107	1.05
AVERAGE	115	500	4.33	327	2.81

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2001-2010.

Table 2. HIP estimates of coot harvest and hunter activity in Wyoming.

YEAR	ACTIVE HUNTERS	DAYS AFIELD	DAYS/ HUNTER	COOT HARVEST	SEASONAL COOT HARVEST/ HUNTER
2000	200+/-129%	1000+/-136%	5.00	400+/-183%	2.0+/-224%
2001	100+/-165%	100+/-138%	1.00	300+/-114%	3.1+/-201%
2002	100+/-180%	400+/-189%	4.00	500+/-182%	6.9+/-255%
2003[a]	200+/-102%	400+/-138%	2.00	200+/-147%	1.3+/-179%
2004[a]	100+/-161%	100+/-153%	1.00	200+/-119%	2.9+/-200%
2005[a]	100+/-194%	100+/-194%	1.00	100+/-194%	1.0+/-275%
2006[a]	100+/-125%	500+/-171%	5.00	900+/-179%	9.4+/-219%
2007[a]	<50+/-166%	<50+/-166%	1.00	<50+/-166%	1.0+/-234%
2008[a]	200+/-111%	200+/-111%	1.00	200+/-195%	1.0+/-224%
2009[a]	<50+/-106%	<50+/-112%	1.00	<50+/-195%	4.5+/-154%
AVERAGE	120	290	2.20	290	3.31

Source: USFWS. HIP final and preliminary[a] harvest estimates.

AMERICAN CROW

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

POPULATION SURVEY

Based on the North American breeding bird survey trend results, crows have increased from 1996-2007 in Wyoming and throughout the United States and Canada.

HARVEST

Recent crow seasons are summarized in Table 1. The crow harvest and hunter activity are unknown in Wyoming. Since a license is not required to hunt crows, there is no means for identifying a sample frame to conduct a harvest survey. The limited hunting that takes place has had essentially no impact on crow populations overall.

RECOMMENDATIONS

1. Maintain hunting opportunity for recreation and to assist with depredation control.

Table 1. Recent crow hunting seasons in Wyoming.

YEAR	SEASON DATES	BAG/POSSESSION LIMITS
2000	November 1 - February 28	None/None
2001	November 1 - February 28	None/None
2002	November 1 - February 28	None/None
2003	November 1 - February 28	None/None
2004	November 1 - February 28	None/None
2005	November 1 - February 28	None/None
2006	November 1 - February 28	None/None
2007	November 1 - February 28	None/None
2008	November 1 - February 28	None/None
2009	November 1 - February 28	None/None

Source: WGFD, Migratory Game Bird Regulations.

TRUMPETER AND TUNDRA SWAN POPULATIONS

PERIOD COVERED: September 1, 2009- August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

The waterfowl section expends substantial time addressing swan issues, especially through the Flyway process. However, the Nongame section oversees the trumpeter swan program. Swans are not hunted in Wyoming. Refer to Nongame completion reports for swan information.

WATERFOWL NESTING STRUCTURES

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

It is our intent to complete this report for inclusion in the 2011 JCR. The report will contain an inventory of structures and their condition in each region, including use by waterfowl and recent and anticipated structure maintenance and management.

RECOMMENDATION:

1. Continue to update goose structure database.

2. Complete the nesting structure status report.

3. Retain a manageable number of effective structures and provide adequate maintenance.

BUMP-SULLIVAN MANAGED GOOSE HUNT

PERIOD COVERED: September 1, 2009 - August 31, 2010

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

Bump-Sullivan Reservoir was dry during the 2009-10 hunting season for dark geese in Goshen County, therefore the Bump-Sullivan Managed Goose Hunt was cancelled. The hunt has been suspended since the 2001-02 hunting season. Refer to previous completion reports for data regarding this hunt.

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