

ANNUAL COMPLETION REPORT

MIGRATORY GAME BIRDS

2012

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And
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2012 JOB COMPLETION REPORT

Species: Migratory Game Birds

Wyoming Portions of the Central and Pacific Flyways

Period Covered: September 1, 2011 - August 31, 2012

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INTRODUCTION

The Migratory Game Bird Section has operated with reduced staffing since the mid-1990s. 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, 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. In addition, substantial personnel time has been devoted to 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. However, mourning doves were banded at two locations. The Migratory Game Bird Section provided financial support to the Central Flyway pre-season duck banding effort in North Dakota.

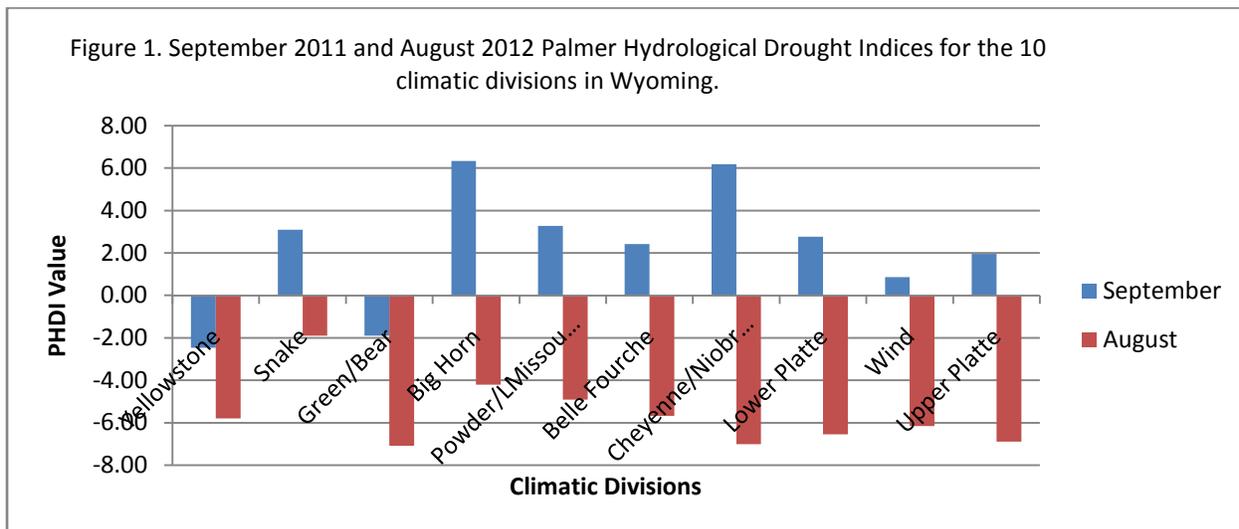
The maintenance and evaluation of over 800 goose nesting structures remains a priority throughout Wyoming. However, reductions in personnel and funding have forced the Department to reevaluate its ability to bed and maintain the structures and to eliminate less effective structures where possible.

The Bump-Sullivan managed goose hunt was initiated in 1993 to alleviate competition among hunters. The hunt was not operated from the 2002/03 through the 2009/10 dark goose-hunting season because Bump-Sullivan Reservoir was dry. The hunt was reinstated during the 2010/11 season. The hunt continued in 2011/12, but as first-come-first-served unmanaged hunt.

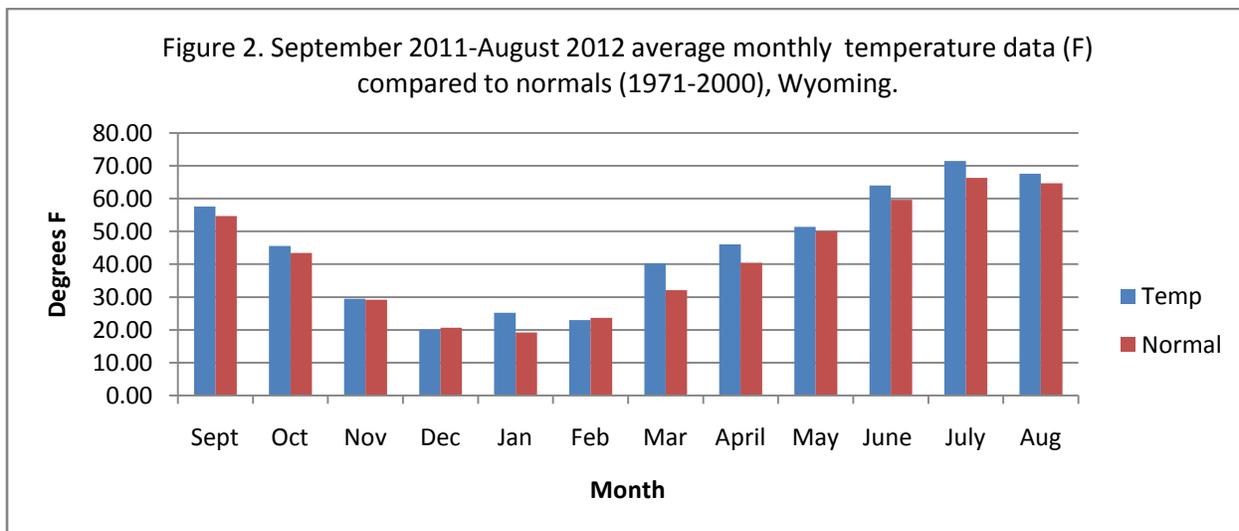
The Section participated in several migratory game bird habitat projects across the state. Local involvement was maintained in the Intermountain West (IWJV) and Northern Great Plains (NGPJV) Joint Ventures. The migratory game bird biologist is a member of the NGPJV and PPP-LCC Technical Committees. The migratory game bird biologist and Alpine Staff Biologist are also participants on the Wyoming Bird Habitat Conservation Partnership, which serves both joint ventures in the state.

WEATHER/HABITAT CONDITIONS

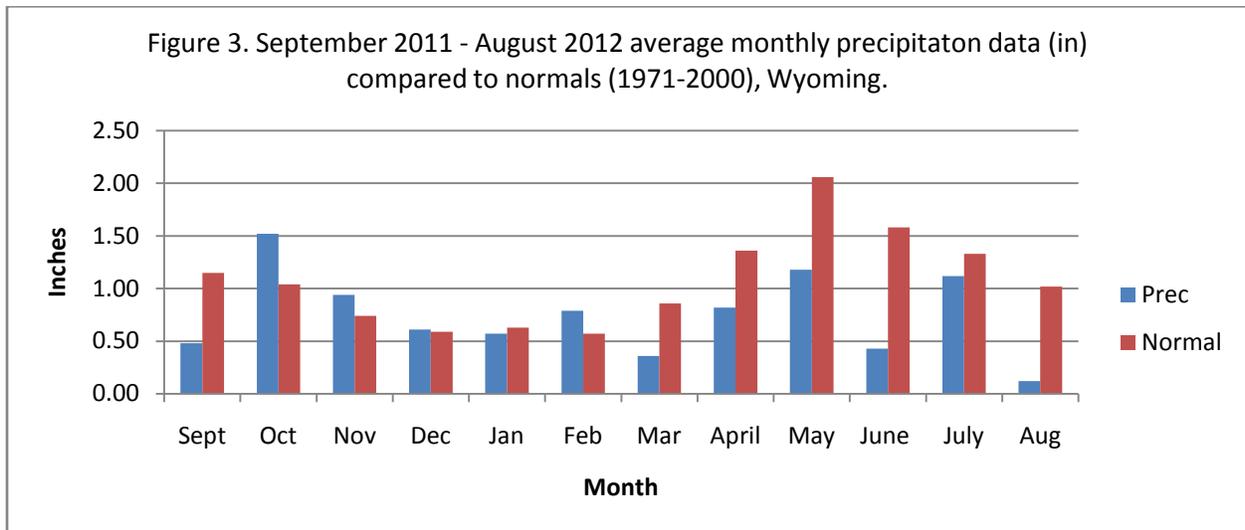
During the report period, September 2011 through August 2012, the monthly Palmer Hydrological Drought Index decreased in all 10 climatic divisions in the state (Figure 1). In September 2011, only the Yellowstone and Green/Bear River basins (mild to moderate) were classified as being in drought. Water conditions decreased markedly in streams and wetlands throughout most of Wyoming.



Average monthly temperatures for Wyoming were above normal (1971-2000 average) during 10 months of the report period (Figure 2). The 12-month average of 45.2° F was above normal (42.00° F).



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 8.94 inches was significantly below normal (12.92 in.).



During the fall of 2011, increased numbers of local and migrating waterfowl were observed throughout Wyoming. In eastern Wyoming near normal temperatures in December were accompanied by near normal precipitation. The November through January period was drier than normal. Lower elevation water bodies in eastern Wyoming froze in December. In western Wyoming, winter conditions were difficult for migratory game birds after late October through December. Duck and Canada goose populations were near or slightly above normal across the state, with some localized exceptions.

During spring, 2012 brood habitat deteriorated across most of the state. Upland habitats also deteriorated as a long-term hydrologic drought returned. Above normal temperatures and below normal precipitation during March through August may have impacted reproductive success of migratory game birds. Mourning doves reproductive success should have improved with these weather conditions.

The computation of the June Surface Water Supply Index (SWSI) includes reservoir storage, if applicable, plus the forecast runoff. Only two drainages had adequate or surplus water supplies in 2012. As of June 1, reservoir storage was 108% of average for the entire state, although storage levels varied widely at individual reservoirs.

Below normal recharge of springs and streams deduced water distribution throughout Wyoming. Uncontrolled grazing in and adjacent to mesic areas during dry years continues to negatively impact the long-term health of these plant communities.

2012 Waterfowl Breeding Habitat Conditions

The traditional and eastern survey areas in the Canada and the U.S. prairies were characterized by average to below-average moisture, a mild winter, and an early spring across the southern portion. Northern habitats of the survey areas generally received average moisture and temperature. The May pond estimate (wetland basins with standing water in Prairie and Parkland Canada and north central U.S.) was 5.5 million – 32% below the 2011 estimate and 9% above the long-term average. Breeding conditions across the Canadian prairies declined relative to 2011. Residual moisture from prior years benefited more permanent wetlands of the coteau in Saskatchewan and near the Saskatchewan and Manitoba border, but temporary wetlands retained little moisture owing to a shallow frost seal and below-average precipitation. Much of the parkland was classified as good; however, habitat conditions declined westward toward Alberta. Following the completion of the survey, the Canadian prairies received above-average precipitation, which may improve habitat conditions for late-nesting waterfowl, re-nesting attempts, and brood rearing.

Habitat conditions significantly declined during 2012 in the surveyed portion of the U.S. prairies. The May pond estimate was 1.7 million, 49% below the 2011 estimate and similar to the long-term average. Only the coteau in North and South Dakota was rated as good and no areas were rated as excellent in 2012. Drastic wetland declines in western South Dakota and Montana resulted in mostly poor-to-fair habitat conditions.

The nesting season in the bush regions of the survey area (Alaska, Yukon, Northwest Territories, northern Alberta, northern Manitoba, northern Saskatchewan, and western Ontario) was earlier due to a slightly earlier spring break-up. Average to above-average annual precipitation benefited arriving waterfowl. Drier conditions were observed in northern Alberta and Saskatchewan and habitat was classified as fair. In western Ontario habitat conditions declined to good in 2012.

In 2012, snowmelt timing was average to earlier than average throughout most of the important goose breeding areas. Conditions in the central Arctic, especially near Queen Maud Gulf, improved relative to last year's very late spring, so improved production of snow, Ross's, white-fronted geese, brant, and Canada geese is expected. Conditions throughout Alaska and northwestern Canada were good. Indices of wetland abundance in the Canadian and U.S. prairies fell dramatically from last year's record highs. However, early spring temperatures were warm throughout most of the U.S., so the resulting early nest initiations should have increased brood survival despite poorer wetland conditions. Production of temperate-nesting Canada geese for most of North America is expected to be above-average in 2012. Primary abundance indices decreased for 10 goose populations and increased for 16 goose populations compared to 2011 levels. Two populations remained the same. Primary abundance indices increased for western and eastern tundra swans compared to 2011 levels. The forecast production of geese and swans in North America is generally favorable in 2012.

Although habitat conditions deteriorated across much of Wyoming, residual moisture and cover may have reduced the negative impact of hot and dry weather during spring and summer on migratory game bird production. The extent of the drought impact is unknown, but weather forecasts for the near future are not favorable to the status of migratory game bird populations.

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DUCKS AND MERGANSERS

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 increased 7% from 2011 to 2012 and was 42% above the long-term average (Tables 1 and 3). The breeding population of mallards in the traditional survey area increased 15% from the 2011 level and remained 40% 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 2012, the counts of eight species increased by comparison to 2011 levels. Breeding populations of northern pintail and redhead declined from 2011 to 2012.

The 2012 fall flight for the mid-continent population of mallards was forecast at 12.7 million, a 0.8 million increase from 2011. 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.

2010 DUCK HARVEST INFORMATION

In 2011, the Department estimated 47,387 ducks were harvested in Wyoming (Table 4). The 2011 harvest was more than recorded in 2010, and 43% 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 from some categories of license venders.

In the Central Flyway portion of Wyoming, 37,548 ducks were harvested in 2011 (Table 5). This harvest was 5% more than recorded in 2010 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, 9,839 ducks were harvested in 2011 (Table 6). This was 10% above the 2010 harvest of 8,810 ducks and remains 66% below the Department's objective for Pacific Flyway duck harvest.

The mallard was the prevalent species harvested by Wyoming hunters (Table 7). American wigeon, teal, gadwall, and goldeneyes were also numerically important species in the harvest. Presently, HIP estimates do not distinguish duck species according to Flyway in any of the Rocky Mountain States. Estimating state-specific sales of duck stamps is also 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 16% above the long-term average (Table 9). The number of ducks counted in the Pacific Flyway portion of the state was 2% above the long-term average.

DUCK BANDING

The Department supported a cooperative duck banding effort by the Central Flyway states in 2011. A single crew banded ducks in central 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 within 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 traditional survey area, 2011 and 2012.

| SURVEY AREA | 2011 | 2012 | PERCENT CHANGE |
|--|---------------|---------------|----------------|
| <u>TRADITIONAL AREAS</u> | | | |
| Alaska - Yukon Territory - Old Crow Flats | 3,756 | 4,455 | 19% |
| C. & N. Alberta - N.E. British Columbia - Northwest Territories | 7,095 | 8,799 | 24% |
| N. Saskatchewan - N. Manitoba - W. Ontario | 2,439 | 2,754 | 13% |
| S. Alberta | 4,372 | 4,845 | 11% |
| S. Saskatchewan | 10,681 | 11,318 | 6% |
| S. Manitoba | 1,554 | 1,538 | -1% |
| Montana and western Dakotas | 3,135 | 2,467 | -21% |
| Eastern Dakotas | 12,523 | 12,400 | -1% |
| TOTAL^a | 45,555 | 48,576 | 7% |

^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, 1955-2012.

Table 2. Mallard breeding population estimates (in thousands) for regions in the traditional survey area, 2011 and 2012.

| SURVEY AREA | 2011 | 2012 | PERCENT CHANGE |
|--|--------------|---------------|----------------|
| <u>TRADITIONAL AREAS</u> | | | |
| Alaska - Yukon Territories - Old Crow Flats | 416 | 506 | 22% |
| C. & N. Alberta - N.E. British Columbia - Northwest Territories | 975 | 1,547 | 59% |
| N. Saskatchewan - N. Manitoba - W. Ontario | 828 | 1,039 | 25% |
| S. Alberta | 939 | 1261 | 34% |
| S. Saskatchewan | 2,093 | 2,502 | 20% |
| S. Manitoba | 521 | 401 | -23% |
| Montana & western Dakotas | 837 | 793 | -5% |
| Eastern Dakotas | 2,574 | 2,554 | -1% |
| TOTAL | 9,183 | 10,603 | 15% |

Source: USFWS. Trends in duck breeding populations, 1955-2012.

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

| SPECIES | <u>PERCENT CHANGE</u> | | | | |
|--|-----------------------|---------------|--------------------------|---------------|---|
| | 2011 | 2012 | BETWEEN 2011 AND 2012 | LTA | BETWEEN 2012 AND THE 1955 - 11 AVERAGE |
| Mallard | 9,183 | 10,602 | 15% | 7,574 | 40% |
| Gadwall | 3,257 | 3,586 | 10% | 1,833 | 96% |
| American wigeon | 2,084 | 2,145 | 3% | 2,594 | -17% |
| Green-winged teal | 2,900 | 3,471 | 20% | 1,991 | 74% |
| Blue-winged teal | 8,948 | 9,242 | 3% | 4,762 | 94% |
| Northern shoveler | 4,641 | 5,018 | 8% | 2,383 | 111% |
| Northern pintail | 4,429 | 3,473 | -22% | 4,038 | -14% |
| Redhead | 1,356 | 1,270 | -6% | 672 | 89% |
| Canvasback | 692 | 760 | 10% | 573 | 33% |
| Scaup (Greater and lesser combined) | 4,319 | 5,239 | 21% | 5,045 | 4% |
| TOTAL | 41,809 | 44,806 | 7% | 31,465 | 42% |

Source: USFWS. Trends in duck breeding populations, 1955-2012.

Table 4. Wyoming duck harvest and hunter activity by Flyway, 2009-2011.

| | MEAN | | | | |
|-----------------------|---------|--------|--------|--------|-----------|
| | 2005-09 | 2009 | 2010 | 2011 | OBJECTIVE |
| CENTRAL FLYWAY | | | | | |
| No. Hunters | 5,355 | 4,622 | 4,347 | 4,712 | 9,216 |
| No. Rec. Days | 30,115 | 24,950 | 23,945 | 25,115 | 45,235 |
| Harvest | 46,092 | 37,765 | 35,641 | 37,548 | 54,394 |
| PACIFIC FLYWAY | | | | | |
| No. Hunters | 1,589 | 1,482 | 1,236 | 1,357 | 3,970 |
| No. Rec. Days | 7,159 | 7,160 | 6,180 | 6,040 | 19,148 |
| Harvest | 14,100 | 13,653 | 8,810 | 9,839 | 29,294 |
| TOTALS | | | | | |
| No. Hunters | 6,944 | 6,104 | 5,583 | 6,069 | 13,186 |
| No. Rec. Days | 37,274 | 32,110 | 30,125 | 31,155 | 64,383 |
| Harvest | 60,192 | 51,418 | 44,451 | 47,387 | 83,688 |

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2012.

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

| MANAGEMENT AREA | | | MEAN | | | | OBJECTIVE |
|--|----|---------------|---------|--------|--------|--------|-----------|
| | | | 2005-09 | 2009 | 2010 | 2011 | |
| Missouri/Cheyenne/ Little Powder Rivers | 1A | No. Hunters | 309 | 193 | 298 | 282 | 398 |
| | | No. Rec. Days | 1,254 | 1,142 | 1,345 | 1,050 | 1,791 |
| | | Harvest | 2,067 | 2,266 | 2,558 | 1,864 | 1,393 |
| Tongue/Little Big Horn/Powder Rivers | 1B | No. Hunters | 306 | 285 | 229 | 315 | 547 |
| | | No. Rec. Days | 1,623 | 1,473 | 966 | 1,556 | 2,461 |
| | | Harvest | 2,212 | 1,954 | 1,800 | 2,505 | 3,063 |
| Central North Platte River | 1C | No. Hunters | 931 | 846 | 798 | 873 | 1,603 |
| | | No. Rec. Days | 6,083 | 5,417 | 4,669 | 4,774 | 8,015 |
| | | Harvest | 9,100 | 7,526 | 6,061 | 7,839 | 7,214 |
| Lower North Platte River | 2A | No. Hunters | 1,207 | 913 | 934 | 1,088 | 2,050 |
| | | No. Rec. Days | 6,947 | 4,568 | 5,756 | 5,356 | 9,225 |
| | | Harvest | 9,809 | 5,840 | 6,833 | 5,951 | 9,225 |
| South Platte River | 2B | No. Hunters | 118 | 109 | 115 | 101 | 193 |
| | | No. Rec. Days | 399 | 521 | 607 | 712 | 965 |
| | | Harvest | 845 | 839 | 1,251 | 821 | 869 |
| Upper North Platte River | 3A | No. Hunters | 415 | 450 | 415 | 296 | 1,075 |
| | | No. Rec. Days | 1,585 | 1,994 | 1,751 | 1,221 | 4,838 |
| | | Harvest | 2,622 | 2,646 | 2,527 | 2,079 | 5,160 |
| Big Horn River | 4A | No. Hunters | 1,449 | 1,327 | 1,045 | 1,145 | 2,200 |
| | | No. Rec. Days | 9,054 | 7,812 | 6,401 | 6,720 | 12,000 |
| | | Harvest | 14,897 | 12,525 | 10,236 | 9,785 | 20,000 |
| Yellowstone River | 4B | No. Hunters | 36 | 12 | 10 | 8 | 100 |
| | | No. Rec. Days | 201 | 48 | 18 | 8 | 400 |
| | | Harvest | 276 | 124 | 97 | 8 | 500 |
| Wind River | 4C | No. Hunters | 557 | 442 | 477 | 545 | 950 |
| | | No. Rec. Days | 2,903 | 1,870 | 2,373 | 3,371 | 5,000 |
| | | Harvest | 4,133 | 3,761 | 4,217 | 6,444 | 6,200 |
| Sweetwater River | 4D | No. Hunters | 27 | 45 | 26 | 59 | 100 |
| | | No. Rec. Days | 66 | 105 | 59 | 347 | 540 |
| | | Harvest | 131 | 284 | 61 | 252 | 770 |
| TOTALS | | No. Hunters | 5,355 | 4,622 | 4,347 | 4,712 | 9,216 |
| | | No. Rec. Days | 30,115 | 24,950 | 23,945 | 25,115 | 45,235 |
| | | Harvest | 46,092 | 37,765 | 35,641 | 37,548 | 54,394 |

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2012.

WATERFOWL MANAGEMENT AREAS IN WYOMING

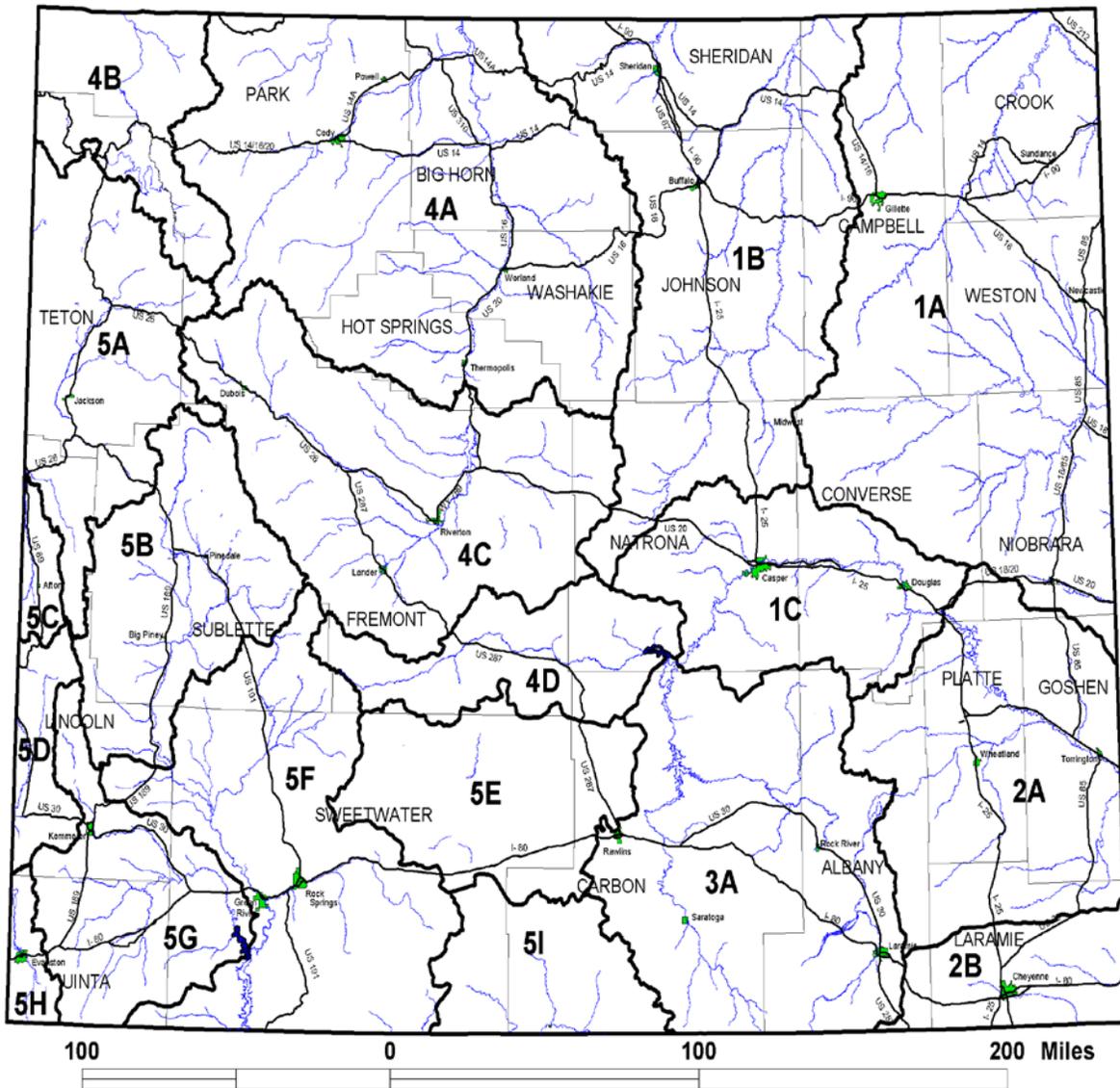


Figure 4. Waterfowl/wetland management areas in Wyoming.

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

| MANAGEMENT AREA | | | MEAN | | | | OBJECTIVE |
|-------------------------|----|---------------|---------|--------|-------|-------|-----------|
| | | | 2005-09 | 2009 | 2010 | 2011 | |
| Snake River | 5A | No. Hunters | 181 | 144 | 125 | 86 | 440 |
| | | No. Rec. Days | 921 | 809 | 870 | 478 | 2,200 |
| | | Harvest | 1,445 | 868 | 1,140 | 834 | 2,800 |
| Upper Green River Basin | 5B | No. Hunters | 241 | 258 | 104 | 147 | 500 |
| | | No. Rec. Days | 991 | 1,007 | 294 | 439 | 2,000 |
| | | Harvest | 1,890 | 1,636 | 503 | 550 | 3,000 |
| Salt River | 5C | No. Hunters | 216 | 150 | 120 | 146 | 750 |
| | | No. Rec. Days | 1,260 | 914 | 811 | 929 | 4,000 |
| | | Harvest | 2,786 | 1,963 | 1,024 | 1,419 | 7,500 |
| Lower Bear River | 5D | No. Hunters | 99 | 91 | 111 | 116 | 450 |
| | | No. Rec. Days | 445 | 513 | 648 | 533 | 2,048 |
| | | Harvest | 937 | 1,240 | 1,140 | 1,031 | 3,294 |
| Great Divide Basin | 5E | No. Hunters | 24 | 36 | 20 | 13 | 100 |
| | | No. Rec. Days | 51 | 68 | 54 | 41 | 400 |
| | | Harvest | 80 | 88 | 100 | 25 | 600 |
| Lower Green River Basin | 5F | No. Hunters | 404 | 408 | 368 | 365 | 700 |
| | | No. Rec. Days | 1,921 | 1,960 | 1,998 | 1,826 | 3,000 |
| | | Harvest | 3,657 | 3,732 | 2,641 | 2,771 | 4,200 |
| Ham's/Black's Fork | 5G | No. Hunters | 243 | 209 | 194 | 276 | 600 |
| | | No. Rec. Days | 816 | 786 | 747 | 1,042 | 3,000 |
| | | Harvest | 1,930 | 1,641 | 1,169 | 1,656 | 3,600 |
| Upper Bear River | 5H | No. Hunters | 139 | 163 | 146 | 184 | 330 |
| | | No. Rec. Days | 662 | 1,062 | 620 | 697 | 1,900 |
| | | Harvest | 1,196 | 2,385 | 941 | 1,451 | 3,500 |
| Little Snake River | 5I | No. Hunters | 42 | 23 | 48 | 24 | 100 |
| | | No. Rec. Days | 92 | 41 | 138 | 55 | 600 |
| | | Harvest | 179 | 100 | 152 | 102 | 800 |
| TOTALS | | No. Hunters | 1,589 | 1,482 | 1,236 | 1,357 | 3,970 |
| | | No. Rec. Days | 7,159 | 7,160 | 6,180 | 6,040 | 19,148 |
| | | Harvest | 14,100 | 13,653 | 8,810 | 9,839 | 29,294 |

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2012.

Table 7. HIP estimates of duck harvest and hunter activity in Wyoming^a during the 2009-2011 hunting seasons.

| DUCK SPECIES COMPOSITION | 2009 | % OF BAG | 2010 | % OF BAG | 2011 | % OF BAG |
|----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Mallard | 25,784 | 57.94 | 22,075 | 61.27 | 22,562 | 61.79 |
| Domestic mallard | 0 | 0.00 | 0 | 0.00 | 61 | 0.17 |
| Gadwall | 2,738 | 6.15 | 2,985 | 8.29 | 2,729 | 7.47 |
| Wigeon | 4,679 | 10.51 | 2,707 | 7.51 | 2,608 | 7.14 |
| Green-winged teal | 3,584 | 8.05 | 3,124 | 8.67 | 2,365 | 6.48 |
| Blue-winged Teal/Cinnamon teal | 747 | 1.68 | 1,805 | 5.01 | 1,031 | 2.82 |
| Northern shoveler | 299 | 0.67 | 625 | 1.73 | 607 | 1.66 |
| Northern pintail | 896 | 2.01 | 417 | 1.16 | 607 | 1.66 |
| Wood duck | 299 | 0.67 | 347 | 0.96 | 182 | 0.50 |
| Redhead | 299 | 0.67 | 208 | 0.58 | 182 | 0.50 |
| Canvasback | 348 | 0.78 | 0 | 0.00 | 243 | 0.67 |
| Great scaup | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Lesser scaup | 299 | 0.67 | 0 | 0.00 | 61 | 0.17 |
| Ring-necked duck | 548 | 1.23 | 208 | 0.58 | 364 | 1.00 |
| Goldeneyes | 3,634 | 8.17 | 625 | 1.73 | 2,365 | 6.48 |
| Bufflehead | 249 | 0.56 | 694 | 1.93 | 243 | 0.67 |
| Ruddy duck | 0 | 0.00 | 69 | 0.19 | 61 | 0.17 |
| Long-tailed duck | 0 | 0.00 | 0 | 0.00 | 61 | 0.17 |
| Scoters | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Hooded merganser | 0 | 0.00 | 0 | 0.00 | 61 | 0.17 |
| Other mergansers | 100 | 0.22 | 139 | 0.39 | 121 | 0.33 |
| Other ducks | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| TOTAL | 44,503 | 100.00 | 36,028 | 100.00 | 36,514 | 100.00 |
| TOTAL DUCK HARVEST | 44,500+/-39% | | 36,000+/-32% | | 36,500+/-31% | |
| TOTAL ACTIVE DUCK HUNTERS | 4,100+/-20% | | 3,300+/-18% | | 4,000+/-19% | |
| TOTAL DUCK HUNTER DAYS AFIELD | 22,300+/-26% | | 18,700+/-26% | | 19,600+/-26% | |
| SEASONAL DUCK HARVEST PER HUNTER | 10.7+/-44% | | 10.8+/-37% | | 9.1+/-36% | |
| Sample Sizes | | | | | | |
| Duck Wings | 894 | | 519 | | 602 | |
| Federal Duck Stamps Sold | Unk | | 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 2003-11 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 |
| 2010 | 25,200 | 10,800 | 36,000 |
| 2011 | 32,000 | 4,500 | 36,500 |

Source: USFWS. HIP preliminary harvest estimates.

Table 9. Changes in ducks and mergansers counted during the mid-winter survey in Wyoming, 2011 to the long-term average.

| SPECIES | CENTRAL FLYWAY | | | PACIFIC FLYWAY | | |
|------------------------------------|----------------|---------------|---|----------------|--------------|---|
| | 2012 | LTA | Between 2012 and The 1992 - 11 Average | 2012 | LTA | Between 2012 and The 2002 - 11 Average |
| Mallard | 57,687 | 58,601 | -2% | 1,990 | 1,881 | 6% |
| Gadwall | 1,143 | 1,001 | 14% | 3 | 9 | -67% |
| American wigeon | 1,161 | 1,080 | 8% | 0 | 0 | 0% |
| Green-winged teal | 327 | 480 | -32% | 30 | 34 | -12% |
| Blue-winged teal/ Cinnamon teal | 0 | 0 | 0% | 0 | 0 | 0% |
| Northern shoveler | 0 | 18 | -100% | 0 | 0 | 0% |
| Northern pintail | 281 | 176 | 60% | 0 | 0 | 0% |
| Wood duck | 15 | 22 | -32% | 0 | 0 | 0% |
| Redhead | 10 | 13 | -23% | 0 | 88 | -100% |
| Canvasback | 0 | 0 | 0% | 0 | 0 | 0% |
| Scaup | 25 | 26 | -4% | 0 | 0 | 0% |
| Ringneck | 446 | 77 | 479% | 0 | 0 | 0% |
| Goldeneye | 18,839 | 7,843 | 140% | 1,919 | 1,761 | 9% |
| Bufflehead | 96 | 136 | -29% | 14 | 3 | 367% |
| Ruddy duck | 25 | 3 | 733% | 0 | 0 | 0% |
| Mergansers | 3,734 | 2,805 | 33% | 461 | 463 | 0% |
| Unidentified | 0 | 34 | -100% | 0 | 82 | -100% |
| TOTAL | 83,789 | 72,315 | 16% | 4,417 | 4,321 | 2% |

Source: WGFD and USFWS 1992 - 2012 MWS reports.

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HI-LINE POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

Prior to 2000, the Department's management objective was based on 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 number of Canada geese from the Hi-Line population that breed in Wyoming has exceeded the Department's objective 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 increase in the number of Canada geese counted last year was attributed to dry and warm weather conditions. Due to observer medical issues, the breeding ground survey was not flown in 2011. Population counts for 2010 were projected to derive a 2011 population estimate.

TRAPPING AND BANDING STUDIES

No HLP Canada geese were trapped and banded during 2011. The most recent banding effort was in 2004. Nine Canada geese that survived an oil spill were banded at Kaycee in July 2004. Four of the geese have been recovered by hunters in Pueblo, Greeley, Gilcrest, CO and Riverton, WY. The most recent recovery was an adult male near Greeley during January 2011. Twenty Canada geese were banded near Big Horn in June 2004. Six of the geese have been recovered by hunters in Loveland (2), Boulder, and Longmont, CO, Decker, MT, and Casper, WY. No recoveries have been reported since 2008 for the Big Horn birds.

HARVEST

The number of hunters, recreation days and harvest were below the Department's objectives for the Hi-Line and Short Grass Prairie populations (Table 2). The only year all three parameters exceeded objectives was in 2005. Harvest decreased 46% from 2010 to 2011. The statewide goose harvest estimated by the USFWS is 25% 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 24 in zone C2 of the Central Flyway. The season opened October 1 throughout zone C1 of the Central Flyway; Goshen and Platte Counties were open October 1 through 16 and November 19 through February 12. All goose species collectively are included in the estimates of goose harvest and hunter activity.

During 2011-12, shooting hours for dark geese were ½ hour before sunrise to sunset except within the following areas: Goshen County north of Wyoming Highway 313 and Count Road 28; and those portions of Platte County west of Interstate Highway 25 or south of Wyoming Highway 160 (Gray Rocks Road) and Riverview Road (Platte County Road 271) where the shooting hours for dark goose should be ½ hour before sunrise until 1:00 p.m., except all-day hunting was allowed October 1-16, all Saturdays and Wednesdays from November 19 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 a 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 and distribution of wintering waterfowl. Midwinter counts of the Hi-Line and Short Grass Prairie populations of Canada geese are summarized in Table 5. Milder than-normal winter weather decreased the migration of geese from northern breeding and staging grounds. Montana counted a record number of Canada geese during January 2012. In eastern Wyoming most roost sites held adequate water due to an increase in precipitation. The 2012 count for Goshen and Platte counties was the lowest since at least 2008.

RECOMMENDATIONS

1. Continue the staggered sunset and 1 P.M. hunting closures for geese in Goshen County.
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 all Central Flyway counties for maximum season length of 107 days.

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

| MANAGEMENT AREA | MEAN | | | | CHANGE | OBJECTIVE |
|--|--------------|--------------|--------------|---------------|----------------------|--------------|
| | 2006-2010 | 2010 | 2011 | 2012 | BETWEEN 11 AND 12 | |
| Missouri and Little Powder Rivers | 2,666 | 2,131 | 2,131 | 3,716 | 74% | 1,820 |
| Tongue/Powder Rivers | 3,365 | 2,899 | 2,899 | 3,332 | 15% | 718 |
| Central North Platte River | 1,260 | 1,136 | 1,136 | 1,136 | NA | 666 |
| Lower North Platte River | 1,096 | 1,092 | 1,092 | 1,092 | NA | 1,128 |
| South Platte River | 133 | 81 | 81 | 209 | 158% | 26 |
| Upper North Platte River (Laramie Plains)* | 1,002 | 785 | 785 | 1,282 | 63% | 513 |
| TOTAL | 9,522 | 8,124 | 8,124 | 10,767 | 33% | 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 2005-09 | MANAGEMENT AREA | | | CHANGE | OBJECTIVE |
|---|-----------------|-----------------|--------|--------|----------------------|-----------|
| | | 2009 | 2010 | 2011 | BETWEEN 10 and 11 | |
| <u>MISSOURI AND LITTLE POWDER RIVER</u> | | | | | | |
| No. Hunters | 237 | 185 | 85 | 179 | 111% | 299 |
| No. Rec. Days | 852 | 1,077 | 418 | 588 | 41% | 1,495 |
| Harvest | 1,071 | 1,502 | 2,293 | 636 | -72% | 598 |
| <u>TONGUE/POWDER RIVER</u> | | | | | | |
| No. Hunters | 175 | 148 | 187 | 179 | -4% | 286 |
| No. Rec. Days | 648 | 634 | 895 | 983 | 10% | 1,430 |
| Harvest | 591 | 654 | 1,211 | 202 | -83% | 715 |
| <u>CENTRAL NORTH PLATTE RIVER</u> | | | | | | |
| No. Hunters | 707 | 579 | 616 | 589 | -4% | 1,106 |
| No. Rec. Days | 4,452 | 3,689 | 3,120 | 3,678 | 18% | 5,530 |
| Harvest | 2,680 | 1,675 | 2,134 | 2,438 | 14% | 1,465 |
| <u>LOWER NORTH PLATTE RIVER</u> | | | | | | |
| No. Hunters | 2,293 | 1,881 | 2,518 | 1,861 | -26% | 2,772 |
| No. Rec. Days | 13,576 | 10,222 | 14,417 | 10,827 | -25% | 15,246 |
| Harvest | 16,621 | 11,727 | 20,705 | 10,718 | -48% | 12,044 |
| <u>SOUTH PLATTE RIVER</u> | | | | | | |
| No. Hunters | 72 | 79 | 92 | 77 | -16% | 68 |
| No. Rec. Days | 300 | 254 | 619 | 295 | -52% | 272 |
| Harvest | 246 | 123 | 461 | 261 | -43% | 170 |
| <u>UPPER NORTH PLATTE RIVER*</u> | | | | | | |
| No. Hunters | 59 | 68 | 56 | 34 | -39% | 165 |
| No. Rec. Days | 197 | 258 | 316 | 295 | -7% | 742 |
| Harvest | 127 | 103 | 309 | 336 | 9% | 330 |
| TOTAL | | | | | | |
| No. Hunters | 3,543 | 2,940 | 3,554 | 2,919 | -18% | 4,696 |
| No. Rec. Days | 20,025 | 16,134 | 19,785 | 16,666 | -16% | 24,715 |
| Harvest | 21,336 | 15,784 | 27,113 | 14,591 | -46% | 15,322 |

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

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2012.

Table 3. HIP estimates of goose harvest and hunter activity in Wyoming^a during the 2009-2011 regular hunting seasons.

| GOOSE SPECIES COMPOSITION | 2009 | % OF BAG | 2010 | % OF BAG | 2011 | % OF BAG |
|---------------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Canada Goose | 21,134 | 99.69 | 24,378 | 99.63 | 15,482 | 97.91 |
| Snow Goose | 66 | 0.31 | 0 | 0.00 | 248 | 1.57 |
| Blue Goose | 0 | 0.00 | 0 | 0.00 | 0 | 0.00 |
| Ross's Goose | 0 | 0.00 | 90 | 0.37 | 83 | 0.52 |
| 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 | 21,200 | 100.00 | 24,468 | 100.00 | 15,813 | 100.00 |
| TOTAL GOOSE HARVEST | 21,200+/-46% | | 24,500+/-24% | | 15,800+/-27% | |
| TOTAL ACTIVE GOOSE HUNTERS | 3,600+/-19% | | 3,800+/-15% | | 3,700+/-18% | |
| TOTAL GOOSE HUNTER DAYS AFIELD | 17,000+/-23% | | 20,000+/-22% | | 17,900+/-23% | |
| SEASONAL GOOSE HARVEST PER HUNTER | 5.8+/-50% | | 6.4+/-28% | | 4.3+/-33% | |
| ACTIVE WATERFOWL HUNTERS ^b | 5,800+/-15% | | 5,700+/-12% | | 5,600+/-14% | |
| Sample Sizes | | | | | | |
| Goose Tails | 322 | | 273 | | 191 | |
| Federal Duck Stamps Sold | Unk | | 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 2003-11 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 |
| 2010 | 20,500 | 3,900 | 24,400 |
| 2011 | 14,900 | 900 | 15,800 |

Source: USFWS. HIP preliminary harvest estimates.

Table 5. Mid-winter surveys of Hi-line/SGP Canada geese in Wyoming, 2008 - 2012.

| <u>Population</u> | | | | | | |
|-----------------------------------|---------------|---------------|---------------|---------------|---------------|---------------|
| Hi-line | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| <u>LOWER NORTH PLATTE RIVER</u> | | | | | | |
| Goshen and Platte Co. | 6,155 | 32,377 | 33,926 | 57,919 | 29,900 | 32,055 |
| <u>CENTRAL NORTH PLATTE RIVER</u> | | | | | | |
| Carbon, Converse and Natrona Co. | 3,721 | 9,777 | 8,552 | 11,456 | 8,862 | 8,474 |
| TOTAL | 9,876 | 42,154 | 42,478 | 69,375 | 38,762 | 40,529 |
| <hr/> | | | | | | |
| SGP | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| <u>LOWER NORTH PLATTE RIVER</u> | | | | | | |
| Goshen and Platte Co. | 378 | 3,203 | 1,414 | 4,765 | 2,884 | 2,529 |
| <u>CENTRAL NORTH PLATTE RIVER</u> | | | | | | |
| Carbon, Converse and Natrona Co. | 228 | 967 | 162 | 943 | 854 | 631 |
| TOTAL | 606 | 4,170 | 1,576 | 5,708 | 3,738 | 3,160 |
| <hr/> | | | | | | |
| Hi-line and SGP combined | 2008 | 2009 | 2010 | 2011 | 2012 | Average |
| <u>LOWER NORTH PLATTE RIVER</u> | | | | | | |
| Goshen and Platte Co. | 6,533 | 35,580 | 35,340 | 62,684 | 32,784 | 34,584 |
| <u>CENTRAL NORTH PLATTE RIVER</u> | | | | | | |
| Carbon, Converse and Natrona Co. | 3,949 | 10,744 | 8,714 | 12,399 | 9,716 | 9,104 |
| TOTAL | 10,482 | 46,324 | 44,054 | 75,083 | 42,500 | 43,689 |

Source: WGFD. Unpublished data.

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ROCKY MOUNTAIN POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 for Canada geese on the number of indicated breeding pairs of 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 breeding population (BPOP) 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.

Breeding ground surveys of the Rocky Mountain Population (RMP) of Canada geese are summarized in Table 1. The 2012 survey was accomplished only in a portion of the Central Reference Area in the Bighorn and Upper North Platte survey areas. The 2011 survey was not done because both biologist observers were incapacitated by medical conditions. The 2010 survey was conducted in both the Central and Western Reference areas. In the Western Reference Area all management areas were flown except Yellowstone Park and the Great Divide Basin in 2010. In the Central Reference area, only the Wind River and Sweetwater River management areas were surveyed in 2010. In 2012 the number of breeding geese increased in both of the survey areas counted in the Eastern Reference Area, resulting in an increase in the 2012 total population count (8,218 geese); which is 6% over the 2010 survey total, 5% below the 2004-2008 average of 8,634 geese, and 9% below the population objective of 9,048 geese counted in the breeding population survey (Table 1).

The 2010 count for the Western Reference Area (3,832) is 36% under the population objective (5,998). The 2012 survey total in the Central Reference Area (4,386) is 13% over the population objective (3,050) for that portion of the population in Wyoming (Table 1). However the survey results from years with partial counts may provide an incomplete or inaccurate picture of actual trends in the BPOP.

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

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 recruitment. However no production surveys are done in either reference area.

Drought conditions returned in 2007 to both reference areas but the BPOP in the Central Reference Area continued to increase. In 2008, good to exceptional winter precipitation improved water conditions but a cold, late spring apparently resulted in a drop in gosling production. Many late broods were observed in the Western Reference Area suggesting there was considerable renesting activity. 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 a notable exception. In some years with below normal snowpack and low spring run-off, or delayed run-off due to cool spring weather, goose production can be enhanced because nests are not flooded out. In 2011 a late spring with cold, wet conditions and record snow pack in many areas resulted in a delayed run-off but flooding occurred in many low-lying areas at the peak of run-off. Anecdotally it appeared many geese were able to bring off their broods prior to high water events in the Snake and Salt River drainages. In 2012 drought conditions returned to central and western Wyoming with exception of the Snake River drainage which had average precipitation and normal spring run-off. The warm, relatively dry spring weather resulted in good to excellent goose brood production in the Snake River drainage. Anecdotally, good goose production was noted in the Upper Green River Basin. However, no surveys were done in the Western Reference Area. The full impact of the drought conditions in much of Wyoming in recent years apparently did not adversely impact BPOP numbers in the Upper North Platte or Bighorn drainages in the Central Reference Area as the number of breeding geese increased by 30% and 23%, respectively (Table 1).

It is unclear if the general early season for geese in the Western Reference Area has had an adverse impact on the local breeding population resulting in the decline observed in the BPOP of the RMP in the western reference area noted between most recent surveys in 2009 and 2010. Shifting to a 3 year cycle for BPOP surveys in the Western Reference Area introduces considerable uncertainty into attempts to determine short term population trends. The lack of banding data makes it impossible to tell what the harvest rates are for locally produced birds taken in Wyoming in the early and late goose seasons versus the harvest in adjacent states and if these harvest rates are excessive. Geese taken during the early season are generally locally produced geese but birds taken later in the regular season may include birds that originate in Yellowstone National Park or southwest Montana or eastern Idaho. None of the geese are banded in these areas. However, there does not appear to be a significant migration of geese into the western reference area from adjacent states.

The Pacific Flyway Study Committee is currently in the process of revising the RMP Canada Goose Management Plan. It is possible the Pacific and Rocky Mountain populations may be combined into a single meta-population in the new management plan. Since surveys indicate breeding populations have deviated significantly from objectives for many years in several management areas in both reference areas, it may be prudent to reconsider population objectives for Wyoming in the next year. When the plan revision is completed, the key changes to the plan will be reported in this annual report. It would be extremely prudent to survey the entire RMP area in Wyoming in the spring of 2013.

MOLT SURVEY

Molting goose surveys were historically flown about every three years. Since the surveys are not used to set seasons and the counts represent molting birds from several populations and states, the primary value of the survey is to document important molting habitat and shifts in use over time. Periodic surveys should be flown but have a low priority compared to other surveys for waterfowl in Wyoming. Molting surveys are now scheduled every fifth year if funding is available.

The molting goose survey was not conducted in 2009 due to funding limitations but was completed in 2010. The previous 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 water levels in the two Wheatland reservoirs were significantly higher than in previous years. Many of these geese are produced in adjacent states and migrate to remote locations in Wyoming to molt.

TRAPPING AND BANDING STUDIES

No banding occurred in Wyoming in 2011-2012. A summary of banding is reported in the 2005-2010 migratory game bird annual reports. A few banded birds are reported each year for banding efforts in Wyoming from 2005 to 2008 (USGS 2011).

Band return data from the trap sites in the Central Reference area suggest that geese banded at Ocean Lake and Wheatland Reservoir Number 3 are mixed stocks from the Rocky Mountain and Highline populations. Apparently most of the molting geese at Wheatland Reservoir Number 3 come from areas outside Wyoming, predominantly Colorado (61.5% of band returns). However some geese were harvested in Utah, New Mexico, Arizona, and California (10% or less of the band returns are reported from those states) (USGS 2011). It is unclear if molting geese originate from those states and come to Wyoming to molt or if they are birds from unknown sources that are harvested on their winter range or killed during their winter migration. It is important to band more locally produced geese improve our understanding of seasonal movements and harvest rates in other states.

HARVEST

Early Season

Early season regulations are summarized in Table 3. An early Canada goose season is not offered in the central reference area. Prior to 2004, early goose hunts in 3 three of 6 areas coincided with the RMP sandhill crane seasons in the Pacific Flyway. 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 goose season 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 limited quota licenses required. 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 portion 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 shifts in goose distribution were 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.

Since the early season framework changed to a general 8 day season in 2004, the goose harvest has increased. In order to track the harvest in the early season, the annual harvest survey was modified in 2005 to survey hunters who participated in the early goose hunt. Based on that survey the estimated harvest was 628 geese in 2005, 1,326 geese in 2006 and 1,426 geese in 2007. However, since 2008 the goose harvest in the early season has declined. Only 804 geese were reported in the harvest 2011 survey. An average of 2.1 geese per hunter was reported in 2005 compared to 2.4 geese per hunter in the 2006, but the average harvest declined to 1.18 geese per hunter in 2009. In 2011 an average of 1.68 geese per hunter was reported in the harvest survey (Table 4).

There is a corresponding increase in the number of hunters from 2005 to 2007 but numbers declined in the most recent three years. Hunter numbers increased from 298 in 2005 to 739 in 2007 but declined to 478 hunters by 2011. Apparently hunters were slow to respond to the early season opportunities and it took several 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 the proportion of geese taken in the early season harvest increased to 50% (808/1626) of the total goose harvest in the western reference area. In 2010 the early season harvest comprised 40% (886/2,228) of the total goose harvest in the Western Reference Area compared to 50% (804/1621 in 2011. The early season hunt takes a large proportion of the annual harvest in only 8 days. Geese are particularly vulnerable to hunting in early September, with family groups decoying fairly readily compared to later in the season when geese are in larger flocks and become decoy shy. Shifts in goose distribution and changes in harvest rates in both the early and late goose hunts should continue to be monitored in the Western Reference Area (Tables 4 and 5).

Regular Season

Harvests during the regular waterfowl season in the western and central reference areas are summarized in Tables 5 and 6, respectively. RMP Canada geese comprise most of the harvest in the management areas that constitute 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 from 2009 to 2011 and when compared to the 2006-2010 mean. The 2011 harvest for the western Reference Area was 39% below the 2010 harvest estimate and 53% below the estimated mean harvest for 2006-2010 and 82% below the objective harvest level.

The harvest during the regular season increased in the Upper Green River and the Ham's Fork/Black's Fork survey areas in 2011 but that increase was relatively inconsequential and may simply reflect sampling bias from one year to the next. However the 2011 harvest decreased sharply in other management areas that traditionally have produced the greatest harvest in the western reference area (Table 5).

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 – 2011, possibly reflecting poor reproduction and/or declining access in some areas. If the early season harvest and hunting pressure continued to increase from the 2007 levels, it is almost certain goose distribution and availability to hunters would be affected during the regular season in the western reference area. However, participation in the early hunt has declined for the last four years (Table 4) and only a few complaints were registered by early season or regular season hunters. Lockman et al (1987) found that hunting pressure during the early goose and crane hunt in the initial years of the limited quota hunt displaced geese out of Star Valley and Bear River/Cokeville Meadows. Presumably these geese moved into adjacent areas in Wyoming, Utah or Idaho where there was no early goose season. This displacement addressed goose depredation issues in the two management areas (Lockman et al 1987).

The estimated harvest of 5,510 geese in the Central Reference Area in 2011 decreased by 51% compared to 2010 (11,254 total harvested geese) and was substantially lower than the 2006-2010 mean harvest estimate (7,542 geese). The estimated annual harvest has fluctuated in past years. The reported harvest in 2011 decreased in all management areas. The harvest in the Bighorn Basin contributes over 50% of the annual harvest in the Central Reference Area and accounted for the largest numerical decrease in 2011. The number of hunters and hunter days in the Central Reference Area also decreased significantly in 2011 (Table 6).

The harvest objective for RMP geese in Wyoming is 7,967 geese including 3,520 geese in the Central Reference Area and 4,447 in the Western Reference Area. The actual harvest in the Central Reference Area has exceeded the objective for the period of record in this report but the harvest in the Western Reference Area has fallen well below the objective over the same time period. It would appear the population harvest objective may be fairly reasonable but the objectives for both reference areas ought to be reviewed in the coming year to determine if changes should be made based on estimated harvest levels achieved in recent years.

Annual changes in harvest estimates and population counts may derive from several factors including: actual changes in the population, shifts in distribution of locally produced birds as a result of drought or early season hunts, changes in migration patterns and annual movements of geese from Montana and Alberta which provide much of the harvest of geese in the central reference area late in the hunting season, or poor counts due to a number of variables. It is uncertain if the early September season may be displacing geese from portions of the western reference area prior to the regular hunting season, but this is clearly possible. Lockman (1987) reported geese from Star Valley were displaced out of the valley after the early goose and crane hunt was initiated to address crop depredation problems. At that time there were substantially more geese counted in the valley during breeding population surveys.

MID-WINTER SURVEY OF RMP CANADA GEESE

In January 2012, 9,111 geese were counted in the mid-winter survey in the Central Reference Area compared to 16,418 geese in 2011, 10,294 geese in 2010 and 15,798 geese in 2009. The 2007 count of 19,512 geese was the highest count during the 5 year period of record (WGFD 2012) (Table 7).

No doubt winter weather patterns affect the number of geese counted in the Central Reference Area of Wyoming. More birds remain in Montana during mild weather and may remain there all winter or until 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 and are reflected in the mid-winter waterfowl survey.

A total of 287 geese were counted in the Western Reference Area in February, 2012 (WGFD 2012). Beginning in 2008, the mid-winter survey was flown in early February to coincide with the winter trumpeter swan survey. This change was made to reduce cost and exposure to risk by combining surveys since comparatively few waterfowl typically found there winter in the Western Reference Area and no significant movements between adjacent states is likely at this time in the winter. In 2011, 497 geese were counted compared to only 147 geese observed in the 2010 mid-winter survey (Table 7).

The total count for the RMP geese in 2007 was 20,149 geese and subsequent surveys have fluctuated between 9,335 geese in 2008 to 16,915 geese in 2011 to 9,398 geese in 2011 (Table 7).

Over the past 5 years, counts have fluctuated in response to winter weather patterns. In most years, suitable winter habitat is limited throughout most of the Western Reference Area. Goose numbers fluctuate widely in the Central Reference Area, depending on the amount of open water and winter severity in Montana and central Wyoming. Overall, the RMP is well above objective and most producing states have liberal hunting seasons including early hunts to deal with local depredation issues (Subcommittee on Rocky Mountain Canada Geese. 2000).

RECOMMENDATIONS

1. Continue breeding ground surveys, harvest surveys, and mid-winter surveys.
2. In 2012 and 2013 continue the general, early September hunt in the Pacific Flyway portion of Wyoming to address local damage problems. The bag limit in 2012 will be 2 a day and 4 in possession from September 1-8 except in Teton County the daily bag limit will be 3 geese per day with 6 in possession to address local depredation issues. 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. The drop in the breeding population in the western reference area

reference areas in 2009 and 2010 and the low harvest in the western reference area in recent years 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 2011-2012. Continue to work collaboratively to develop an effective CCP and hunt plan.
4. Continue the trapping and banding program in the Western Reference Area, 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 2012-2013.
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.

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

| WESTERN REFERENCE AREA | MEAN 2004-08 | 2009 | 2010 | 2011 | 2012 | CHANGE BETWEEN 11 AND 12 | OBJECTIVE |
|-----------------------------------|-----------------|--------------|--------------|--------------|--------------|--------------------------------|--------------|
| Yellowstone Park | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| Snake River | 521 | 675 | 594 | 594 | 594 | 0% | 589 |
| Upper Green River | 389 | 417 | 318 | 318 | 318 | 0% | 718 |
| Salt River | 436 | 216 | 423 | 423 | 423 | 0% | 615 |
| Lower Bear | 557 | 449 | 555 | 555 | 555 | 0% | 2,230 |
| Great Divide Basin | 28 | 24 | 24 | 24 | 24 | 0% | 26 |
| Lower Green River | 646 | 808 | 502 | 502 | 502 | 0% | 461 |
| Ham's/Black's River | 902 | 1,091 | 868 | 868 | 868 | 0% | 795 |
| Upper Bear River | 229 | 256 | 246 | 246 | 246 | 0% | 308 |
| Little Snake River | 271 | 380 | 302 | 302 | 302 | 0% | 256 |
| TOTAL | 3,979 | 4,316 | 3,832 | 3,832 | 3,832 | 0% | 5,998 |
| CENTRAL REFERENCE AREA | | | | | | | |
| Upper North Platte River | 724 | 539 | 540 | 540 | 725 | 34% | 384 |
| Big Horn River | 1,420 | 1,360 | 1,360 | 1,360 | 1,673 | 23% | 1,051 |
| Wind River | 1,936 | 1,277 | 1,525 | 1,525 | 1,525 | 0% | 1,333 |
| Sweetwater River | 575 | 769 | 463 | 463 | 463 | 0% | 282 |
| TOTAL | 4,655 | 3,945 | 3,888 | 3,888 | 4,386 | 0% | 3,050 |
| OVERALL TOTAL | 8,634 | 8,261 | 7,720 | 7,720 | 8,218 | 0% | 9,048 |

Not all management areas are surveyed annually. To generate population estimates 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 | 2007 | 2008 | 2009 | 2010 | 2011 |
|-------------------------------|---------------|------|------|------|---------------|------|
| WESTERN REFERENCE AREA | | | | | | |
| | MEAN | | | | | |
| Yellowstone Lake | 3,818 | NS | NS | NS | 2,423 | NS |
| Yellowstone Meadows | 978 | NS | NS | NS | 335 | NS |
| Turbid Lake | 288 | NS | NS | NS | 815 | NS |
| Delusion Lake | 28 | NS | NS | NS | 19 | NS |
| Subtotal | 5,112 | | | | 2,592 | |
| Heart Lake | 602 | NS | NS | NS | 479 | NS |
| Jackson Lake | 970 | NS | NS | NS | 1,061 | NS |
| Subtotal | 1,572 | | | | 1,540 | |
| Sixty-Seven Reservoir | 532 | NS | NS | NS | 1,251 | NS |
| McNinch Res. # 1 | 113 | NS | NS | NS | 363 | NS |
| Subtotal | 645 | | | | 1,614 | |
| Big Sandy Reservoir | 1,651 | NS | NS | NS | 1,042 | NS |
| Eden Reservoir | 355 | NS | NS | NS | 712 | NS |
| Subtotal | 2,006 | | | | 1,754 | NS |
| CENTRAL REFERENCE AREA | | | | | | |
| Picket Lake Complex | 460 | NS | NS | NS | 821 | NS |
| Subtotal | 460 | | | | 821 | |
| Pathfinder Reservoir | 220 | NS | NS | NS | 417 | NS |
| Wheatland Res. # 2 | 6,980 | NS | NS | NS | 7,623 | NS |
| Wheatland Res. # 3 | 3,199 | NS | NS | NS | 1,950 | NS |
| Wheatland Reservoirs (2&3) | 10,179 | NS | NS | NS | 9,573 | NS |
| 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. Early September hunting regulations for RMP Canada geese, 2005 - 2011 (WGFD 2005-2011).

| HUNT AREA | YEAR | | | | | | 2011 |
|------------------------------------|------|------|------|------|------|------|------|
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | |
| <u>1 Bear River</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |
| <u>2 Salt River</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |
| <u>3 Eden/Farson</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |
| <u>5 Teton County</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |
| <u>7 Blacks/Smith Forks</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |
| <u>8 Little Snake River</u> | | | | | | | |
| No. Permits | ** | ** | ** | ** | ** | ** | ** |
| Season Dates (Sept.) | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 | 1-8 |
| Bag/Season Limit | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 | 2/4 |

Table 4. Harvest data the early season for 2005-2011 for the Western Reference Area of the RMP.

| MANAGEMENT AREA | YEAR | | | | | | |
|--|------|------|------|------|------|------|------|
| | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| <u>5A Snake River</u> | | | | | | | |
| No. Hunters | 52 | 79 | 125 | 77 | 63 | 77 | 67 |
| Hunter Days | 131 | 208 | 204 | 173 | 153 | 161 | 125 |
| Harvest | 84 | 217 | 219 | 205 | 172 | 193 | 144 |
| <u>5B Upper Green River</u> | | | | | | | |
| No. Hunters | 31 | 16 | 49 | 49 | 35 | 0 | 29 |
| Hunter Days | 56 | 37 | 71 | 74 | 52 | 0 | 66 |
| Harvest | 57 | 31 | 78 | 27 | 28 | 0 | 9 |
| <u>5C Salt River</u> | | | | | | | |
| No. Hunters | 23 | 111 | 136 | 61 | 90 | 71 | 67 |
| Hunter Days | 67 | 296 | 280 | 111 | 248 | 185 | 125 |
| Harvest | 82 | 302 | 301 | 180 | 171 | 161 | 144 |
| <u>5D Lower Bear River</u> | | | | | | | |
| No. Hunters | 8 | 19 | 48 | 53 | 24 | 55 | 67 |
| Hunter Days | 23 | 40 | 124 | 130 | 54 | 129 | 108 |
| Harvest | 10 | 23 | 181 | 110 | 40 | 105 | 92 |
| <u>5E Great Divide Basin</u> | | | | | | | |
| No. Hunters | 2 | 12 | 0 | 3 | 11 | 0 | 0 |
| Hunter Days | 2 | 14 | 0 | 6 | 11 | 0 | 0 |
| Harvest | 5 | 40 | 0 | 3 | 11 | 0 | 0 |
| <u>5F Lower Green River</u> | | | | | | | |
| No. Hunters | 106 | 207 | 121 | 236 | 141 | 178 | 160 |
| Hunter Days | 230 | 393 | 257 | 528 | 332 | 345 | 318 |
| Harvest | 270 | 401 | 217 | 427 | 267 | 208 | 241 |
| <u>5G Ham's Fork-Black Fork</u> | | | | | | | |
| No. Hunters | 58 | 76 | 148 | 79 | 72 | 35 | 79 |
| Hunter Days | 92 | 231 | 291 | 160 | 134 | 91 | 138 |
| Harvest | 90 | 276 | 306 | 117 | 114 | 54 | 142 |
| <u>5H Upper Bear River</u> | | | | | | | |
| No. Hunters | 18 | 27 | 102 | 23 | 2 | 24 | 9 |
| Hunter Days | 35 | 66 | 137 | 36 | 8 | 57 | 42 |
| Harvest | 30 | 36 | 114 | 39 | 15 | 12 | 12 |
| <u>5H Little Snake River</u> | | | | | | | |
| No. Hunters | 0 | 0 | 10 | 7 | 12 | 46 | 0 |
| Hunter Days | 0 | 0 | 10 | 7 | 24 | 91 | 0 |
| Harvest | 0 | 0 | 10 | 0 | 0 | 153 | 0 |
| <u>TOTAL</u> | | | | | | | |
| No. Hunters | 298 | 547 | 739 | 589 | 450 | 486 | 478 |
| Hunter Days | 636 | 1285 | 1374 | 1221 | 1016 | 1059 | 1727 |
| Days/Hunter | 2.1 | 2.3 | 1.9 | 2.1 | 23 | 2.2 | 3.6 |
| Harvest | 628 | 1326 | 1426 | 1101 | 808 | 886 | 804 |
| Birds/Hunter | 2.11 | 2.42 | 1.93 | 1.86 | 1.18 | 1.82 | 1.68 |

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2006-2012.

Table 5. Canada goose harvest data for the regular season for the Western Reference Area of the RMP ^a.

| | MEAN 2006-2010 | 2009 | 2010 | 2011 | CHANGE BETWEEN 10 and 11 | OBJECTIVE |
|--|-------------------|-------|-------|-------|--------------------------------|-----------|
| SNAKE RIVER | | | | | | |
| No. Hunters | 107 | 104 | 75 | 30 | -60% | 500 |
| No. Rec. Days | 415 | 207 | 360 | 262 | -27% | 2,800 |
| Harvest | 143 | 159 | 62 | 48 | -23% | 500 |
| UPPER GREEN RIVER | | | | | | |
| No. Hunters | 109 | 157 | 47 | 56 | 19% | 350 |
| No. Rec. Days | 396 | 531 | 119 | 125 | 5% | 1,750 |
| Harvest | 157 | 236 | 37 | 45 | 22% | 438 |
| SALT RIVER | | | | | | |
| No. Hunters | 120 | 105 | 82 | 44 | -46% | 800 |
| No. Rec. Days | 774 | 698 | 558 | 225 | -60% | 3,304 |
| Harvest | 215 | 78 | 91 | 22 | -76% | 600 |
| LOWER BEAR RIVER | | | | | | |
| No. Hunters | 83 | 94 | 91 | 62 | -32% | 1,500 |
| No. Rec. Days | 337 | 426 | 454 | 292 | -36% | 7,500 |
| Harvest | 154 | 141 | 185 | 69 | -63% | 1,800 |
| GREAT DIVIDE BASIN | | | | | | |
| No. Hunters | 6 | 0 | 10 | 7 | -30% | 100 |
| No. Rec. Days | 13 | 0 | 10 | 15 | 50% | 500 |
| Harvest | 4 | 0 | 10 | 0 | NA | 50 |
| LOWER GREEN RIVER | | | | | | |
| No. Hunters | 263 | 275 | 293 | 235 | -20% | 475 |
| No. Rec. Days | 1,451 | 1,420 | 1,441 | 872 | -39% | 2,375 |
| Harvest | 657 | 484 | 499 | 313 | -37% | 380 |
| HAM'S/BLACK'S FORK | | | | | | |
| No. Hunters | 137 | 120 | 76 | 134 | 76% | 370 |
| No. Rec. Days | 586 | 597 | 384 | 478 | 24% | 1,850 |
| Harvest | 315 | 269 | 137 | 222 | 62% | 444 |
| UPPER BEAR RIVER | | | | | | |
| No. Hunters | 102 | 130 | 69 | 89 | 29% | 370 |
| No. Rec. Days | 366 | 326 | 235 | 312 | 33% | 1,665 |
| Harvest | 97 | 91 | 158 | 89 | -44% | 185 |
| LITTLE SNAKE RIVER | | | | | | |
| No. Hunters | 12 | 11 | 25 | 9 | -64% | 100 |
| No. Rec. Days | 17 | 11 | 76 | 9 | -88% | 500 |
| Harvest | 5 | 0 | 163 | 9 | -94% | 50 |
| TOTALS FOR WESTERN REFERENCE AREA | | | | | | |
| No. Hunters | 939 | 996 | 768 | 666 | -13% | 4,565 |
| No. Rec. Days | 4,355 | 4,216 | 3,637 | 2,590 | -29% | 22,244 |
| Harvest | 1,747 | 1,458 | 1,342 | 817 | -39% | 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, 2007-2012.

Table 6. Canada goose harvest and hunter activity during the regular season within the central reference area of the RMP ^a.

| | MEAN 2006-2010 | 2009 | 2010 | 2011 | CHANGE BETWEEN 10 and 11 | OBJECTIVE |
|---|-------------------|-------|--------|-------|--------------------------------|-----------|
| <u>UPPER NORTH PLATTE RIVER</u> | | | | | | |
| No. Hunters | 109 | 136 | 110 | 68 | -32% | 330 |
| No. Rec. Days | 445 | 516 | 624 | 589 | -6% | 1,485 |
| Harvest | 290 | 205 | 612 | 672 | 10% | 660 |
| <u>BIGHORN RIVER</u> | | | | | | |
| No. Hunters | 893 | 895 | 869 | 696 | -20% | 1,200 |
| No. Rec. Days | 5,506 | 5,177 | 6,126 | 3,742 | -39% | 5,600 |
| Harvest | 5,074 | 4,988 | 7,866 | 3,049 | -61% | 1,200 |
| <u>YELLOWSTONE RIVER</u> | | | | | | |
| No. Hunters | 26 | 2 | 10 | 8 | -20% | |
| No. Rec. Days | 94 | 12 | 18 | 8 | -56% | |
| Harvest | 26 | 2 | 23 | 8 | -65% | |
| <u>WIND RIVER</u> | | | | | | |
| No. Hunters | 421 | 480 | 419 | 332 | -19% | 1,200 |
| No. Rec. Days | 1,770 | 2,219 | 2,064 | 1,932 | -6% | 4,200 |
| Harvest | 2,124 | 2,687 | 2,694 | 1,759 | -35% | 1,600 |
| <u>SWEETWATER RIVER</u> | | | | | | |
| No. Hunters | 11 | 14 | 15 | 34 | 126% | 100 |
| No. Rec. Days | 30 | 24 | 71 | 328 | 362% | 450 |
| Harvest | 28 | 36 | 59 | 22 | -63% | 60 |
| <u>TOTALS FOR CENTRAL REFERENCE AREA</u> | | | | | | |
| No. Hunters | 1,460 | 1,527 | 1,423 | 1,138 | -20% | 2,830 |
| No. Rec. Days | 7,845 | 7,948 | 8,903 | 6,599 | -26% | 11,735 |
| Harvest | 7,542 | 7,918 | 11,254 | 5,510 | -51% | 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, 2007-2012.

Table 7. Mid-winter surveys of the RMP of Canada geese in Wyoming.

| MANAGEMENT AREA | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|--------------------------|---------------|--------------|---------------|---------------|---------------|--------------|
| Wind River | 6,648 | 1,231 | 8,337 | 1,697 | 2,876 | 2,104 |
| Big Horn River | 12,864 | 7,923 | 7,461 | 8,349 | 13,403 | 7,007 |
| Upper North Platte River | 0 | 34 | 0 | 248 | 139 | 0 |
| CENTRAL | | | | | | |
| REFERENCE AREA | 19,512 | 9,188 | 15,798 | 10,294 | 16,418 | 9,111 |
| Snake River | 192 | 70 | 99 | 70 | 133 | 60 |
| Salt River | 163 | 49 | 28 | 49 | 106 | 93 |
| Lower Green River | 282 | 18 | 213 | 18 | 256 | 133 |
| Upper Green River | 0 | 10 | 0 | 10 | 2 | 1 |
| WESTERN | | | | | | |
| REFERENCE AREA | 637 | 147 | 340 | 147 | 497 | 287 |
| TOTALS | 20,149 | 9,335 | 16,138 | 10,441 | 16,915 | 9,398 |

NF= Not Flown

Source: WGFD data.

SHORT GRASS PRAIRIE POPULATION OF CANADA GEESE

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 2012 was 292,800, 5% lower than the 2011 index. In 2012, the estimated spring population in the NWT was 207,600, a 9% decrease from 2011. Production is expected to be above average and the fall flight larger than that of 2011.

HARVEST

Harvest and hunter activity estimates for both Hi-Line and Short Grass Prairie Canada geese are summarized in Tables 2 and 3. 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 decreased last year. During the most recent 20-year period, 14% of the Canada geese harvested within the HLP range of Wyoming were SGPP geese. Canada geese from the Rocky Mountain Population are also present in the Central Reference Area 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 of January. The 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, 9% of the Canada geese counted within the HLP range were SGPP geese.

Ground surveys were begun in 1999 to classify large and small Canada geese 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.

| Year | Goose Harvest ^b | Percent Hi-Line | Number Hi-Line | Percent Short Grass | Number Short Grass |
|--|----------------------------|-----------------|----------------|---------------------|--------------------|
| 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 |
| 2010 | 27,113 | 92 | 24,944 | 8 | 2,169 |
| 2011 | 14,594 | 91 | 13,281 | 9 | 1,313 |
| Averages | 17,193 | 86 | 14,795 | 14 | 2,399 |
| ^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 |
|----------|-------------|-----------------|----------------|---------------------|--------------------|
| 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 |
| 2011* | 75,083 | 92 | 69,375 | 8 | 5,708 |
| 2012* | 42,500 | 91 | 38,762 | 9 | 3,738 |
| AVERAGES | | 91 | | 9 | |

*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 | | | | | | |
| | 2008 | 50 | 1 | 51 | 98.0 | 2.0 |
| | 2009 | 200 | 1 | 201 | 99.5 | 0.5 |
| | 2010 | NS | | | | |
| | 2011 | 147 | 0 | 147 | 100.0 | 0.0 |
| | 2012 | 0 | 0 | 0 | 0.0 | 0.0 |
| Converse | | | | | | |
| | 2008 | 336 | 2 | 338 | 99.4 | 0.6 |
| | 2009 | 599 | 9 | 608 | 98.5 | 1.5 |
| | 2010 | 166 | 0 | 166 | 100.0 | 0.0 |
| | 2011 | 865 | 26 | 891 | 97.1 | 2.9 |
| | 2012 | 714 | 21 | 735 | 97.1 | 2.9 |
| Goshen | | | | | | |
| | 2008 | 246 | 30 | 276 | 89.1 | 10.9 |
| | 2009 | 2633 | 310 | 2943 | 89.5 | 10.5 |
| | 2010 | 3130 | 110 | 3240 | 96.6 | 3.4 |
| | 2011 | 2403 | 240 | 2643 | 90.9 | 9.1 |
| | 2012 | 1316 | 202 | 1518 | 86.7 | 13.3 |
| Natrona | | | | | | |
| | 2008 | 589 | 16 | 605 | 97.4 | 2.6 |
| | 2009 | 1081 | 35 | 1116 | 96.9 | 3.1 |
| | 2010 | 660 | 8 | 668 | 98.8 | 1.2 |
| | 2011 | 242 | 1 | 243 | 99.6 | 0.4 |
| | 2012 | 441 | 57 | 498 | 88.6 | 11.4 |
| Platte | | | | | | |
| | 2008 | 718 | 70 | 788 | 91.1 | 8.9 |
| | 2009 | 1526 | 240 | 1766 | 86.4 | 13.6 |
| | 2010 | 1656 | 98 | 1754 | 94.4 | 5.6 |
| | 2011 | 1446 | 155 | 1601 | 90.3 | 9.7 |
| | 2012 | 482 | 5 | 446 | 108.1 | 1.1 |
| Total | | | | | | |
| | 2008 | 1939 | 119 | 2058 | 94.2 | 5.8 |
| | 2009 | 6039 | 595 | 6634 | 91.0 | 9.0 |
| | 2010 | 5612 | 216 | 5828 | 96.3 | 3.7 |
| | 2011 | 5103 | 422 | 5525 | 92.4 | 7.6 |
| | 2012 | 2953 | 285 | 3238 | 91.2 | 8.8 |

NS - Not surveyed.

Source: WGFD unpublished data.

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WESTERN CENTRAL FLYWAY POPULATION OF LIGHT GEESE

PERIOD COVERED: September 1, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

BREEDING POPULATION

The Western Central Flyway 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 2012, spring phenology was approximately 4 days earlier than average in the Queen Maud Gulf area – following 5 years of later than average timing. Nesting phenology in the Queen Maude Gulf Sanctuary was 2 days earlier compared to the long-term average and 1 day earlier than last year. Snow goose production is expected to be above average, a turnaround after several years of below-average production.

HARVEST

Light goose hunting regulations 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 and the potential for accidental harvests of resident trumpeter swans. Light goose harvests within the Central Flyway portion of Wyoming are summarized in Table 2.

CONSERVATION ORDER

The Department implemented the light goose conservation order for the 12th consecutive year in 2011 (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.

Based on the survey response, 163 hunters harvested 660 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 decreased from last year, most likely the result of dry and warm weather during March and fewer young birds available to hunt.

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, and the entire range, which includes Mexico, is surveyed only once every 3 years. However, surveys in Mexico have not been conducted since 2009 due to sociopolitical unrest in that country. In the U.S. portion of the survey, 205,300 geese were counted in January 2012, 5% more than last year. Population indices have increased 8% per year during 2003-2012.

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 | | | | | | | | | |
|------------------------------|----------------|------------|------------|------------|----------|-----------|-----------|------------|------------|------------|
| | 2002/03 | 2003/04 | 2004/05 | 2005/06 | 2006/07 | 2007/08 | 2008/09 | 2009/10 | 2010/11 | 2011/12 |
| Regular Season Dates | 10/5-12/31 | 10/4-12/31 | 10/2-12/31 | 10/1-12/31 | 10/7-1/7 | 10/6-1/1 | 10/4-1/1 | 10/3-12/27 | 10/2-12/26 | 10/1-12/25 |
| | 1/27-2/13 | 1/27-2/12 | 1/27-2/10 | 1/27-2/9 | 1/27-2/8 | 1/26-2/12 | 1/26-2/9 | 1/21-2/8 | 1/20-2/7 | 1/28-2/15 |
| 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 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
| Season Dates | 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 | 2/21-4/10 | 2/20-4/8 |
| 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: WGF. 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 |
|---------|---------------------------|-------------------------|--------------------|
| 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 | 114 | 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 |
| 2010/11 | ND | 90 | 965 |
| 2011/12 | ND | 331 | 660 |

^aWyoming harvest data is for February and March only.

N/D - No data.

Source: USFWS Light geese in the Central Flyway June 2012 and Preliminary harvest estimates 2010 and 2011, and WGFD data.

Table 3. Harvest and hunter activity for the Wyoming 2012 light goose conservation order.

| | Season | | | |
|---|---------------|--|--|--|
| February 20 - April 8 | | | | |
| Permits Sold (excludes known collector purchases) | 177 | | | |
| Total Survey Respondents | 144 | | | |
| % Responded | 81% | | | |
| Active Hunters | 163 | | | |
| Total Days Hunted | 575 | | | |
| Days/Hunter | 3.5 | | | |
| Geese Harvested | 611 | | | |
| Geese Knocked Down, but not retrieved | 49 | | | |
| Total Harvest | 660 | | | |
| Harvest/Hunter | 4.0 | | | |
| Hunters using Electronic Callers | 118 | | | |
| Harvest by Hunters using Electronic Callers | 427 | | | |
| Average Harvest of Hunters using Callers | 3.6 | | | |
| Hunters Hunting After Sunset | 68 | | | |
| Harvest by Hunters Hunting After Sunset | 73 | | | |
| Average Harvest of After Sunset Hunters | 1.1 | | | |
| Hunters Using Callers and Hunting After Sunset | 55 | | | |
| % of Hunters Hunting in Goshen County | 97.0 | | | |
| 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 |
| 2011 | 6 |
| 2012 | 17 |

Source: USFWS. Light geese in the CF March 2012. USFWS and WGFD mid-winter survey reports.

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ROCKY MOUNTAIN POPULATION OF GREATER SANDHILL CRANES

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 and the Bear River Hunt Area in Lincoln County was expanded to include the Hams Fork Drainage.

The crane hunts were started to reduce crop depredations by staging cranes and 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 recent years. Consequently, the harvest allocation available to Wyoming was reduced starting with the 2007 hunting season. However, increasing crane numbers in the September survey and relatively good crane recruitment offset the proportional reduction in the harvest allocation for Wyoming. This resulted in increasing permit numbers in subsequent years.

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 most recently 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. In 2011 the Pacific and Central Flyways revised and updated the plan to include the latest 5 year averages for proportions of the fall flight counted in each summer range or producing state. These data are used to calculate the proportion of the harvest allocated to summer range states

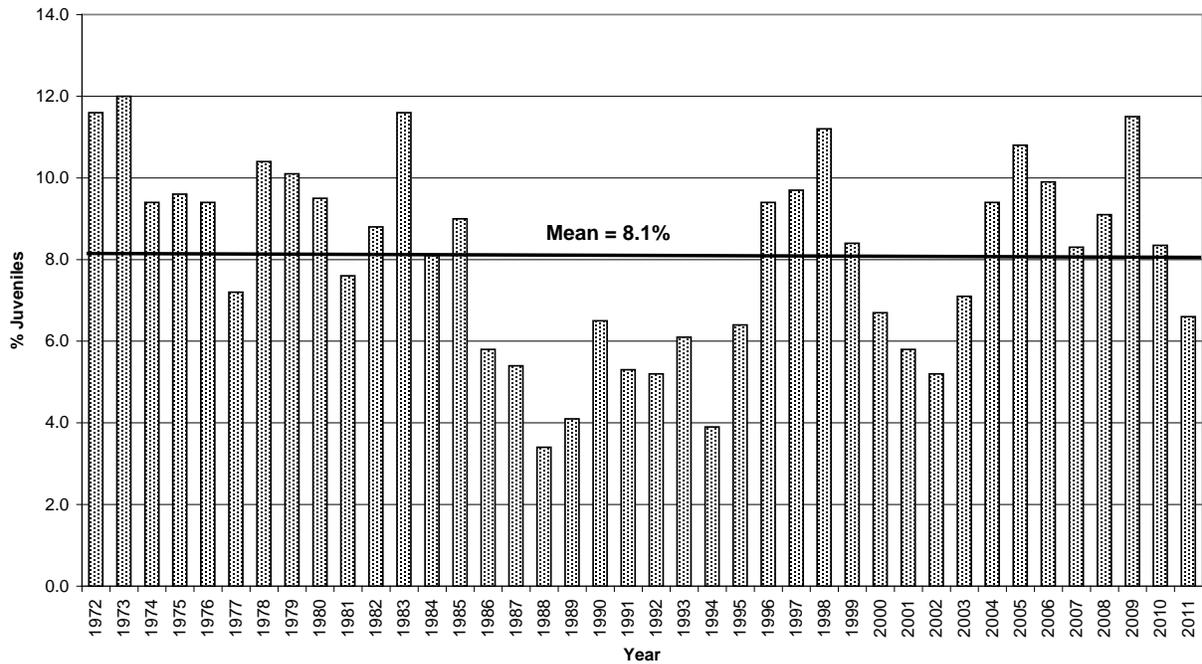
POPULATION STATUS

Survey data from the Rocky Mountain population are summarized in Table 1. The 2006 survey was canceled because the U. S. Fish and Wildlife Service's survey aircraft had mechanical problems. However some surveys were completed by state personnel prior to the decision to cancel the survey by the U. S. Fish and Wildlife Service and those data are reported for the appropriate tables in this report. In 2005, 20,865 cranes were counted. In 2007 a record of 22,822 RMP cranes was counted in 68 locations in the fall migration surveys (Drewin et al. 2009). The survey data suggest the population has been increasing slightly 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. In 2010 the number of cranes counted in pre-migration surveys increased to 21,064 at the upper limit of the objective range. The 2011 count dropped to 17,494 cranes (Table 1).

The late spring may have delayed nesting and the subsequent movement of family groups down to valleys in late summer. Water conditions were good in the high elevation wetlands and cranes may have lingered later on their summer ranges and the 2011 survey may have been too early to capture the peak numbers of birds on the staging areas (Thorpe and Benning 2011).

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 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, compared to 11.5% in 2009 and 8.3% in 2010. The cold wet spring of 2010 in much of the Rocky Mountain West likely is responsible for the drop in crane recruitment. Crane recruitment dropped again to 6.6% in 2011, likely a result of the cool spring and above normal snow pack at higher elevations that delayed crane nesting and. May have resulted in poor nest success or chick survival. The five -year running average from 2007-2011 was 8.8% juveniles in the fall flight, slightly above the long term mean of 8.5%. Increased recruitment appears to driving population growth in recent years but declines in the proportion of juveniles in the fall flight in the last 2 years probably are partially responsible for declines seen in the September survey in 2011. (Table 2, Fig. 1 from Drewin 2011).

Fig. 1. Recruitment (% juv.) in Rocky Mountain Greater Sandhill Cranes, San Luis Valley, Colorado, 1972-2011



SEPTEMBER PRE-MIGRATION STAGING SURVEYS

Results of September pre-migration surveys are summarized in Table 2 (Thorpe and Benning 2011). Crane surveys on the 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. WGFD personnel completed some sections of the surveys in 2006 but flyway-wide data are incomplete. In 2011, 2,978 cranes were counted in RMP staging areas of central and western Wyoming. This was lower than the number observed in 2010 (3,726) and slightly lower than the long term average for 1987-2011 of 3,135 cranes counted in the RMP areas of Wyoming. The highest crane count in Wyoming was 4,205 in 1999. The data in Table 2 suggest the September crane counts in Wyoming and Montana are increasing while counts in Idaho are declining. The number of cranes counted in Utah and Colorado fluctuate annually and likely represent variation in the migration patterns related to timing of the migration.

Data from the fall survey indicate crane numbers have declined in the Lower Bear River Valley and Star Valley since 1984. Although counts in both survey areas increased in 2007, they again dropped again in 2008. Numbers increased slightly in Star Valley in 2009 but declined in the Bear River Valley. However, counts in recent years have never reached the numbers observed in

the early 1980's (Fig.A1 and A2 from Drewin et al. 2009). Numbers increased in 2010 and 2011 in the lower Bear River Valley but fluctuated in Star Valley in 2010 and 2011 (Table 3).

Counts fluctuate annually in response to changes in population size, distribution, areas surveyed, and visibility conditions during the counts. Drought conditions adversely affect chick production and survival and ultimately 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 are thought to result in shifts in the annual and long term distribution of cranes counted in staging areas.

Crane counts are conducted in the Pacific flyway (western reference area) in mid-September after the early goose and crane hunting seasons have ended. However, informal late August counts of cranes flying off roosts in the upper Salt River and the Big Sandy/Eden Reservoirs suggest crane numbers in these two areas may be higher just prior to the hunts. Therefore, the decline in cranes counted during pre-migration staging surveys in the Salt River, Bear River, Uinta, and Farson hunt areas may not be representative of cranes actually present at the start of the early goose and crane hunts.

Early hunting seasons are designed to reduce crop depredation by shifting the fall distribution of cranes over time. The limited harvest has 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., Lockman et al. 1987). Some annual variation is also the result of the observers' ability to see cranes under various 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.

Crane numbers have generally increased in the Farson area reaching a peak count of 1,957 cranes in 2008, although the count declined in the last 3 years to 988 in 2011. Counts in the Bighorn Basin and the Wind River drainage have fluctuated but exhibited an overall increasing trend through 2007. The distribution of staging cranes has also expanded. An area near Worland was added to the Bighorn Basin survey area in 2007. Crane numbers in the Bighorn Basin count blocks declined substantially in 2011 and were stable in the Wind River Basin count blocks in the last 2 years. A substantial influx of cranes, presumably from Montana, occurs after the surveys are completed in both the Wind River Basin and Bighorn Basin survey areas. Crane numbers also increased between 2005 and 2007 in the Hams Fork and Bridger Valleys where few cranes were counted prior to 2000. Between 2008 and 2010 few cranes were counted in these survey blocks and this may reflect an avoidance response to very nominal hunting pressure. However, in 2011 counts increased to previous high levels in both areas (Table 3).

Fig. A1. Star Valley, WY

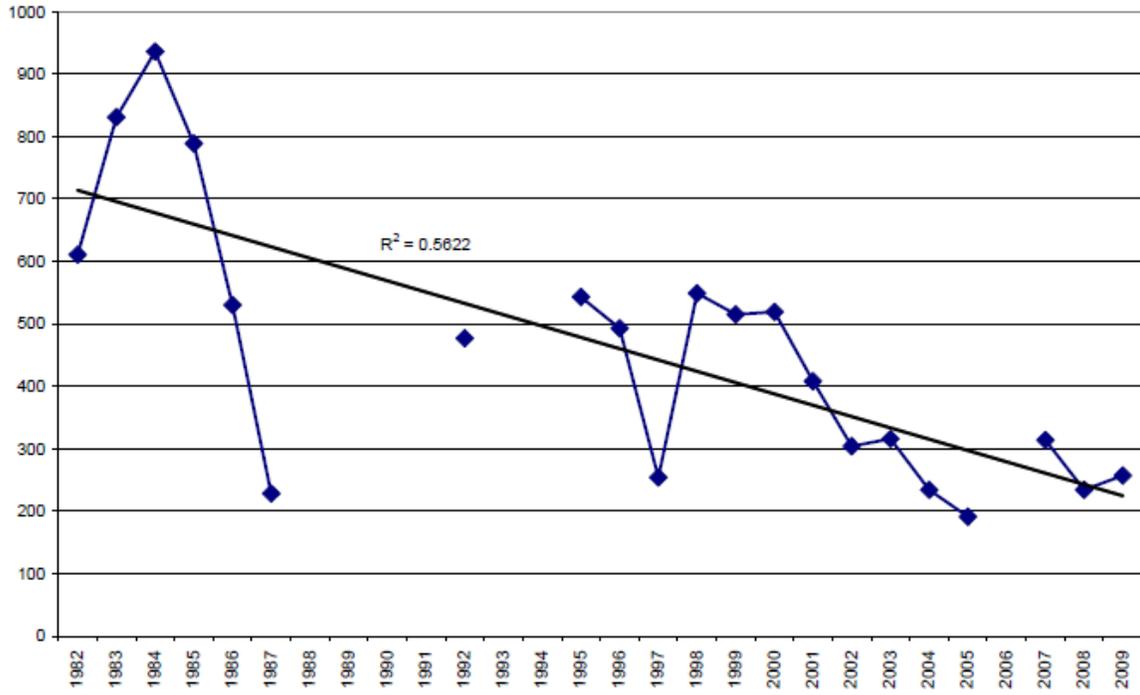
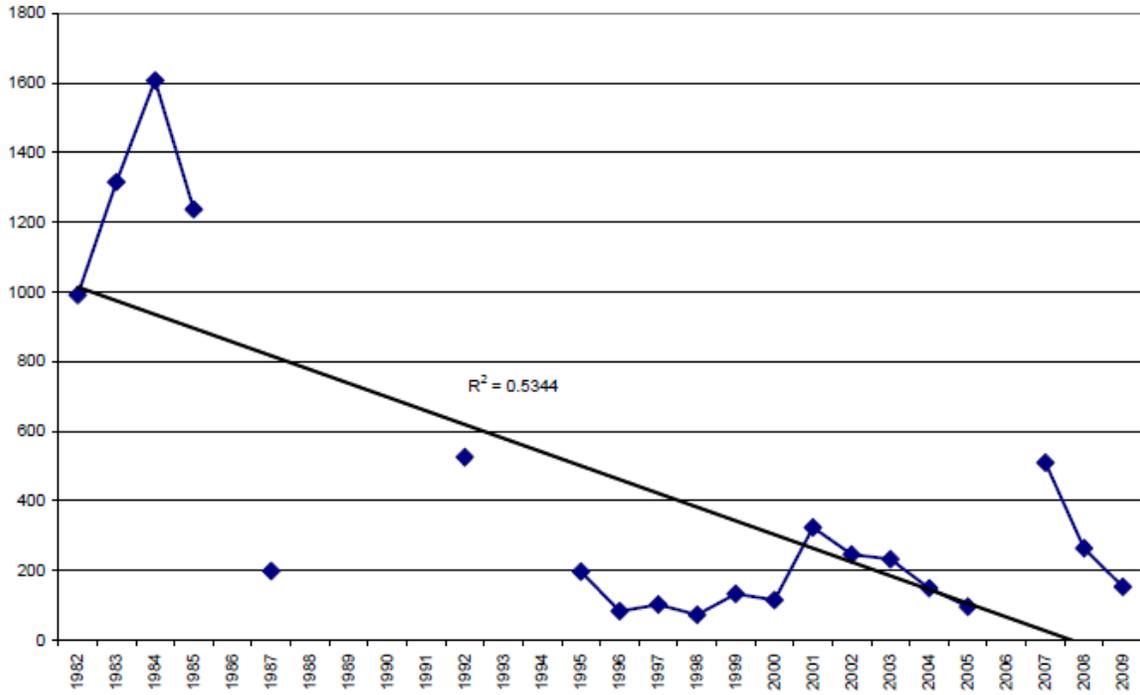


Fig. A2. Bear River Valley, WY



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 prescriptive model is used 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. Due to declines in the proportion of cranes counted in Wyoming prior to 2007, the proportion of harvest allocated to Wyoming was reduced to an allowable harvest of 131 for the 2007 season. However, the permit allocation in Wyoming increased over the last 3 years from 165 cranes to 197 cranes as a result of an increase in the total fall counts of the Rocky Mountain population and improved recruitment of juveniles into the fall population. However the 2011 allocation declined to 175 cranes due to a decline in recruitment in 2010. Recent regulations for hunting RMP cranes in Wyoming and the permit allocation by hunt area are summarized for 2002-2011 in Table 4. Permit numbers are calculated by multiplying the harvest allocation by 2, assuming 50% success, on average, for permit holders. The calculations for the 2011 allocation for all states are shown in Appendix 1.

During the 2011 season, 297 hunters harvested 161 cranes in the six hunt areas. Permit success ranged from 36% in Area 1 (Bear River) to 64% in Area 5 (Uinta). The harvest rate for active hunters ranged from 0.41 cranes per hunter in Area 1 (Bear River) to 0.64 cranes per hunter in Area 5 (Uinta). Hunter success exceeded 50% in all hunt areas except Area 1 (Bear River) (Table 5).

Table 6 summarizes crane harvest statistics for hunt areas in Wyoming from 2002-2011. The 2011 harvest rate was 0.54 cranes per active hunter compared to 0.55 cranes per hunter in 2010. The 2002-2010 average harvest rate was 0.61 cranes per hunter. Harvest rates continue to fluctuate in the 6 hunt areas in Wyoming.

An experimental hunt area (Uinta County) was added in 2008 with 10 permits to evaluate landowner and hunter response. In the subsequent three seasons crane harvest ranged from 0.25 cranes per hunter to 0.64 cranes per hunter (Table 6). Gaining access to private lands with crane concentrations appears to be an issue as does the limited number of cranes staging in this area in some years.

Boundaries of two other hunt areas were expanded. Area 1 (Bear River drainage in Lincoln County) was enlarged to include the Hams Fork drainage in Lincoln County. It is unclear if the expansion of Hunt Area 1 has met the intended objectives of providing additional hunter opportunity and addressing some depredation issues. Area 6 in the Bighorn Basin was enlarged to include all of Park, Bighorn, Hot Springs and Washakie Counties. Crane harvest has increased in the three subsequent years. Cody Region believes more hunters could be accommodated and landowners perceive crane depredation is increasing (Table 6).

Changes in hunt area harvest rates appear to be a function of permit numbers and crane availability in any given year. Shifts in crane distribution are likely responsible for some reductions in harvest and hunter success. Land use changes from agriculture to subdivisions, 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 to survey cranes on fall pre-migration staging areas.
2. Continue the 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 intended 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. Continue monitoring to determine if the expansion of hunt area boundaries in the Bighorn Basin (Area 6) and Bear River (Area 1) produce more hunting opportunity and address depredation complaints as crane numbers increase and their fall distribution expands.
5. Continue monitoring to determine if creation of new Hunt Area 5 in Uinta County is creating additional hunting opportunity and addressing depredation complaints as crane numbers increase and their fall distribution expands in Wyoming. Continue reviewing population and harvest data to determine if this hunt area expansion is appropriate and should continue in the future.

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Table 1. Population data for the Rocky Mountain Population of Greater Sandhill Cranes 1997-2011.

| | September Total Pre-migration | % Juvenile Fall, San Luis Valley | Recruitment rate 5-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 |
| 2010 | 21,064 | 8.3 | 9.4 | 1,970 |
| 2011 | 17,494 | 6.6 | 8.8 | 1,771 |

Table 2. September pre-migration staging area counts by state of the Rocky Mountain population of greater sandhill cranes during 1987, 1992, 1995-2005, 2007-2011.

| 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 |
| 2010 | 985 | 5,776 | 7,335 | 3,242 | 3,726 | 21,064 |
| 2011 | 1,358 | 5,029 | 6,642 | 1,498 | 2,978 | 17,494 |
| Mean | 1,358 | 7,534 | 4,720 | 2,281 | 3,135 | 19,028 |

^aColorado 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, 2007-2011.

| Primary Staging Area | Responsible Agency | Year and (Survey Date) | Total Count (Aerial or Ground) |
|------------------------------|--------------------|------------------------|--------------------------------|
| Lower Bear River Valley | USFWS | 2007 (9/10) | 510(Aerial) |
| | | 2008 (9/15) | 264 (aerial) |
| | | 2009 (9/15) | 153 (Aerial) |
| | | 2010 (9/13) | 488 (Aerial) |
| | | 2011 (9/13) | 539 (Aerial) |
| Star Valley (Salt River) | WGFD/USFWS | 2007 (9/12) | 314 (Aerial) |
| | | 2008 (9/16) | 234 (Aerial) |
| | | 2009 (9/17) | 257 (Aerial) |
| | | 2010 (9/17) | 127 (Aerial) |
| | | 2011(9/13) | 198(Ground/Aerial) |
| Farson-Eden | USFWS | 2007(9/13) | 1,431(Aerial) |
| | | 2008(9/15) | 1,957 (Aerial) |
| | | 2009 (9/14) | 1,463 (Aerial) |
| | | 2010 (9/14) | 1,297 (Aerial) |
| | | 2011 (9/12) | 988 (Aerial) |
| Boysen-Riverton (Wind River) | WGFD | 2007 (9/12) | 433 (Aerial) |
| | | 2008 (9/16) | 133 (Aerial) |
| | | 2009 (9/17) | 345(Aerial) |
| | | 2010 (9/14) | 235 (Aerial) |
| | | 2011 (9/13) | 276 (Aerial) |
| Greybull River Valley | WGFD | 2007 (9/12) | 374 (Aerial) |
| | | 2008 (9/16) | 481 (Aerial) |
| | | 2009 (9/16) | 283 (Aerial) |
| | | 2010 (9/14) | 454 (Aerial) |
| | | 2011 (9/13) | 185 (Aerial) |
| Shoshone River Valley | WGFD | 2007 (9/12) | 386 (Aerial) |
| | | 2008 (9/16) | 196 (Aerial) |
| | | 2009 (9/16) | 389 (Aerial) |
| | | 2010 (9/14) | 470 (Aerial) |
| | | 2011 (9/13) | 341 (Aerial) |

| Table 3. Continued | Responsible | Year and | Total Count |
|----------------------|-------------|------------------|--------------------|
| Primary Staging Area | Agency | (Survey Date) | (Aerial or Ground) |
| Worland | WGFD | | |
| | | 2007 (9/12) | 24 (Aerial) |
| | | 2008 (9/16) | 201 (Aerial) |
| | | 2009 (9/16) | 215(Aerial) |
| | | 2010 (9/14) | 322 (Aerial) |
| | | 2011 (9/13) | 96 (Aerial) |
| Big Piney | USFWS | | |
| | | 2007 (9/13) | 46 (Aerial) |
| | | 2008 (9/15) | 138(Aerial) |
| | | 2009 (9/14) | 91 (Aerial) |
| | | 2010 (9/14) | 76 (Aerial) |
| | | 2011 (9/13) | 14 (Aerial) |
| Bridger Valley | WGFD | | |
| | | 2007 (9/12) | 116 (Ground) |
| | | 2008 (9/16) | 42 (Ground) |
| | | 2009 (9/15) | 51 (Ground) |
| | | 2010 (9/15) | 75 (Ground) |
| | | 2011 (9/16/9/19) | 105 (Ground) |
| Lonetree | WGFD | | |
| | | 2007 (9/14) | 50 (Ground) |
| | | 2008 | NS |
| | | 2009 | NS |
| | | 2010 (9/15) | 0 (Ground) |
| | | 2011 (9/17) | 0 (Ground) |

| Table 3. Continued | Responsible | Year and | Total Count |
|---------------------------|--------------|------------------|--------------------|
| Primary Staging Area | Agency | (Survey Date) | (Aerial or Ground) |
| Hams Fork | USFWS | | |
| | | 2007 (9/10) | 149 (Aerial) |
| | | 2008 (9/15) | 51 (Aerial) |
| | | 2009 (9/14) | 90 (Aerial) |
| | | 2010 (9/13) | 18 (Aerial) |
| | | 2011 (9/13) | 101 (Aerial) |
| Little Snake River Valley | WGFD | | |
| | | 2007 (9/10) | 2 (Ground) |
| | | 2008 (9/16) | 0 (Ground) |
| | | 2009 (9/17) | 2 (Ground) |
| | | 2010 (9/15) | 0 (Ground) |
| | | 2011(9/13) | 0 (Ground) |
| Pinedale-Cora | USFWS | | |
| | | 2007 (9/13) | 8 (Aerial) |
| | | 2008 (9/15) | 0 (Aerial) |
| | | 2009 (9/14) | 45 (Aerial) |
| | | 2010 (9/14) | 2 (Aerial) |
| | | 2011 (9/13) | 0 (Aerial) |
| Seedskafee NWR | USFWS | | |
| | | 2007 (9/13) | 0 (Ground) |
| | | 2008 (9/15-9/16) | 0 (Ground) |
| | | 2009 (9/15-9/16) | 4 (Ground) |
| | | 2010 (9/15) | 4 (Ground) |
| | | 2011 (9/14) | 6 (Ground) |
| Upper North Platte River | WGFD | | |
| | | 2007 (9/13) | 0 (Ground) |
| | | 2008 (9/16) | 11 (Ground) |
| | | 2009 (9/17) | 5 (Ground) |
| | | 2010 (9/15) | 26 (Ground) |
| | | 2011 (9/13) | 60 (Ground) |
| Jackson Hole | | | |
| | JH Bird Club | 2007 (9/11-9/12) | 64 (Ground) |
| | USF&WS | 2008 (9/18) | 118 (Ground) |
| | USF&WS | 2009 (9/16) | 220 (Ground) |
| | USF&WS | 2010 (9/15) | 132 (Ground) |
| | USF&WS | 2011 (9/14) | 69 (Ground) |

Table 4 Recent Hunting Regulations for the RMP Sandhill Crane Hunt Areas in Wyoming

| | YEAR | | | | | | | | | |
|-------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| HUNT AREA | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| <u>1 Bear River</u> | | | | | | | | | | |
| No. Permits | 35 | 30 | 20 | 26 | 42 | 25 | 30 | 30 | 30 | 25 |
| Season Dates (Sept.) | 1-14 | 1-14 | 1-14 | 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 |
| <u>2 Salt River</u> | | | | | | | | | | |
| No. Permits | 40 | 30 | 20 | 26 | 42 | 26 | 25 | 31 | 30 | 25 |
| Season Dates (Sept.) | 1-7 | 1-8 | 1-8 | 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 |
| <u>3 Eden/Farson</u> | | | | | | | | | | |
| No. Permits | 55 | 45 | 45 | 56 | 94 | 60 | 85 | 106 | 105 | 95 |
| Season Dates (Sept.) | 1-7 | 1-8 | 1-8 | 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 |
| <u>4 Riverton</u> | | | | | | | | | | |
| No. Permits | 55 | 45 | 60 | 70 | 116 | 75 | 85 | 100 | 105 | 90 |
| Season Dates (Sept.) | 21-30 | 20-30 | 18-30 | 17-30 | 16-30 | 16-30 | 13-30 | 13-30 | 18-30 | 17-30 |
| Season Dates (Oct.) | 1-11 | 1-10 | 1-8 | 1-7 | 1-6 | 1-8 | 1-8 | 1-3 | 1-10 | 1-9 |
| Season Limit | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| <u>5 Uinta</u> | | | | | | | | | | |
| No. Permits | | | | | | | 10 | 10 | 10 | 10 |
| Season Dates (Sept.) | | | | | | | 1-8 | 1-8 | 1-8 | 1-8 |
| Season Limit | | | | | | | 1 | 1 | 1 | 1 |
| <u>6 Big Horn/Park</u> | | | | | | | | | | |
| No. Permits | 55 | 45 | 60 | 74 | 124 | 80 | 95 | 110 | 115 | 115 |
| Season Dates (Sept.) | 21-30 | 20-30 | 18-30 | 17-30 | 16-30 | 15-30 | 13-28 | 13-28 | 18-30 | 17-30 |
| Season Dates (Oct.) | 1-6 | 1-8 | 1-8 | 1-2 | 1 | | | | 1-3 | 1-2 |
| Season Limit | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

Table 5. Harvest and hunter activity for the 2011 hunting season for 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 | | | | | | | 175 |
| Permits Issued | 25 | 25 | 95 | 90 | 11 | 106 | 352 |
| Active Hunters | 22 | 25 | 86 | 71 | 11 | 82 | 297 |
| Total Days Hunted | 46 | 61 | 171 | 166 | 37 | 228 | 709 |
| Days/Active Hunter | 2.1 | 2.4 | 2.0 | 2.3 | 3.4 | 2.8 | 2.4 |
| Adult Harvest | 8 | 8 | 38 | 33 | 7 | 30 | 124 |
| Juvenile Harvest | 1 | 5 | 10 | 9 | 0 | 12 | 37 |
| Unknown Age Harvest | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total Crane Harvest | 9 | 13 | 48 | 42 | 7 | 42 | 161 |
| Cranes per Active Hunter | 0.41 | 0.52 | 0.56 | 0.59 | 0.64 | 0.51 | 0.54 |
| Permit Success | 36% | 53% | 51% | 47% | 64% | 40% | 46% |
| Cranes Knocked Down but not Retrieved | 2 | 0 | 3 | 0 | 0 | 0 | 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 in Wyoming 2002-2011

| HUNT AREA | YEAR | | | | | | | | | |
|-----------------------------|------|------|------|------|------|------|------|------|------|------|
| | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
| <u>1 Bear River</u> | | | | | | | | | | |
| No. Hunters | 33 | 24 | 15 | 24 | 18 | 21 | 27 | 24 | 20 | 25 |
| Hunter Days | 48 | 52 | 29 | 47 | 27 | 44 | 51 | 46 | 33 | 46 |
| Days/Hunter | 1.3 | 2.2 | 1.9 | 2 | 1.5 | 2.1 | 1.9 | 1.9 | 1.7 | 2.1 |
| Harvest | 16 | 4 | 12 | 14 | 12 | 9 | 17 | 18 | 11 | 9 |
| Cranes/Hunter | 0.48 | 0.17 | 0.76 | 0.58 | 0.67 | 0.43 | 0.63 | 0.75 | 0.55 | 0.41 |
| <u>2 Salt River</u> | | | | | | | | | | |
| No. Hunters | 32 | 18 | 15 | 23 | 30 | 11 | 22 | 22 | 26 | 25 |
| Hunter Days | 84 | 49 | 48 | 59 | 87 | 29 | 45 | 54 | 109 | 61 |
| Days/Hunter | 2.7 | 2.7 | 3.3 | 2.6 | 3 | 2.6 | 2.1 | 2.5 | 4.2 | 2.4 |
| Harvest | 7 | 4 | 7 | 10 | 12 | 8 | 10 | 8 | 6 | 13 |
| Cranes/Hunter | 0.22 | 0.21 | 0.46 | 0.43 | 0.42 | 0.7 | 0.45 | 0.36 | 0.23 | 0.52 |
| <u>3 Eden/Farson</u> | | | | | | | | | | |
| No. Hunters | 53 | 38 | 35 | 43 | 73 | 54 | 69 | 83 | 85 | 86 |
| Hunter Days | 94 | 62 | 65 | 82 | 135 | 103 | 137 | 152 | 151 | 171 |
| Days/Hunter | 1.8 | 1.6 | 1.9 | 1.9 | 1.9 | 1.9 | 2 | 1.8 | 1.8 | 2.0 |
| Harvest | 35 | 18 | 24 | 31 | 58 | 42 | 37 | 46 | 63 | 48 |
| Cranes/Hunter | 0.66 | 0.47 | 0.68 | 0.72 | 0.79 | 0.77 | 0.54 | 0.55 | 0.74 | 0.56 |
| <u>4 Riverton</u> | | | | | | | | | | |
| No. Hunters | 44 | 33 | 55 | 48 | 83 | 65 | 70 | 73 | 91 | 71 |
| Hunter Days | 95 | 71 | 91 | 90 | 155 | 118 | 121 | 133 | 196 | 166 |
| Days/Hunter | 2.2 | 2.1 | 1.6 | 1.9 | 1.9 | 1.8 | 1.7 | 1.8 | 2.2 | 2.3 |
| Harvest | 34 | 27 | 37 | 28 | 55 | 45 | 45 | 58 | 46 | 42 |
| Cranes/Hunter | 0.77 | 0.83 | 0.66 | 0.58 | 0.66 | 0.69 | 0.64 | 0.79 | 0.51 | 0.59 |
| <u>5 Uinta</u> | | | | | | | | | | |
| No. Hunters | | | | | | | 10 | 8 | 10 | 11 |
| Hunter Days | | | | | | | 20 | 22 | 13 | 37 |
| Days/Hunter | | | | | | | 2 | 2.8 | 1.3 | 3.4 |
| Harvest | | | | | | | 3 | 2 | 3 | 7 |
| Cranes/Hunter | | | | | | | 0.30 | 0.25 | 0.30 | 0.64 |
| <u>6 Big Horn</u> | | | | | | | | | | |
| No. Hunters | 48 | 39 | 54 | 58 | 101 | 62 | 83 | 93 | 96 | 82 |
| Hunter Days | 116 | 114 | 110 | 152 | 276 | 124 | 191 | 217 | 192 | 228 |
| Days/Hunter | 2.4 | 2.9 | 2.1 | 2.6 | 2.6 | 2 | 2.3 | 2.3 | 2.0 | 2.8 |
| Harvest | 40 | 19 | 44 | 33 | 57 | 35 | 50 | 6.3 | 53 | 42 |
| Cranes/Hunter | 0.83 | 0.50 | 0.82 | 0.57 | 0.56 | 0.56 | 0.60 | 0.68 | 0.55 | 0.51 |
| TOTAL | | | | | | | | | | |
| Harvest Allocation | 132 | 106 | 104 | 144 | 209 | 131 | 165 | 192 | 197 | 165 |
| Permits Issued | 242 | 195 | 206 | 254 | 401 | 266 | 330 | 387 | 395 | 352 |
| No. Hunters | 210 | 152 | 174 | 196 | 305 | 213 | 281 | 303 | 328 | 297 |
| Hunter Days | 437 | 348 | 343 | 430 | 687 | 418 | 562 | 624 | 695 | 709 |
| Days/Hunter | 2.1 | 2.3 | 2.0 | 2.2 | 2.3 | 2.0 | 2 | 2.1 | 2.1 | 2.4 |
| Harvest | 132 | 72 | 124 | 116 | 194 | 138 | 162 | 195 | 182 | 161 |
| Cranes/Hunter | 0.63 | 0.48 | 0.71 | 0.59 | 0.64 | 0.65 | 0.58 | 0.64 | 0.55 | 0.54 |

Appendix 1. 2011 Harvest Allocation based on the RMP Sandhill Crane Plan

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)

$$C = \frac{21,156 + 20,321 + 21,064}{3} = 20,847$$

$$P = \frac{0.091 + 0.115 + 0.083}{3} = 0.096$$

$$f = (C/16,000)^3 = (20,847/16,000)^3 = 2.212$$

2011 Harvest Allocation = 20,847 x 0.096 x 0.5 x 0.8 x 2.212 = 1771
 2010 Harvest Allocation = 21,433 x 0.096 x 0.5 x 0.8 x 2.404 = 1,979
 2009 Harvest Allocation = 21,614 x 0.091 x 0.5 x 0.8 x 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 x 0.8 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 counts**
- 2008 Allocation based on 2004, 2005, and 2007 fall counts**
- 2009 Allocation based on 2005, 2007, and 2008 fall counts**
- 2010 Allocation based on 2007, 2008, and 2009 fall counts**
- 2011 Allocation based on 2008, 2009, and 2010 fall counts**

| | Summer Range | Winter Range | Unused Colorado | Base Allocation Percent | Base Allocation | Total Allocation |
|---------------|----------------|----------------|-----------------|-------------------------|-----------------|---------------------|
| Colorado | 2.70 % | 5.80 % | --- | 8.5% | 150 | 0 (0) |
| Idaho | 22.00 % | --- | (1.14%) | 22.00 % | 390 | 390+20 (410) |
| Montana | 14.30 % | --- | (0.76%) | 14.30 % | 253 | 253+13 (266) |
| Wyoming | 9.40 % | --- | (0.53%) | 9.40 % | 166 | 166+9 (175) |
| Utah | 6.60 % | 2.70 % | (0.76%) | 9.30 % | 165 | 165+14 (179) |
| Arizona | --- | 5.80 % | (0.83%) | 5.80 % | 103 | 103+15 (118) |
| New Mexico | --- | 28.00 % | (4.01%) | 28.00 % | 496 | 496+71 (567) |
| Mexico | --- | 2.70 % | (0.46%) | 2.70 % | 48 | 48+8 (56) |
| TOTALS | 55.00 % | 45.00 % | 8.49% | 100 % | 1,771 | 1,771 |

*** Numbers in bold in parentheses are based on no hunt will occur in Colorado in 2011. 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, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

SURVEYS

Few cranes in this population nest in Wyoming and they do not consistently stage in here in significant numbers. Most of the migration bypasses Wyoming to the east. Accordingly, the Department does not conduct surveys of mid-continent sandhill cranes. Some flocks migrate through eastern WY and provide largely incidental hunting opportunities. The MCP crane population has remained 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 2011 season, 20 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. Although there has been no hunter activity in Johnson County, the last 3 years, there has been limited activity in Sheridan County. The five cranes estimated to be taken in 2011 in Sheridan County were the first crane harvest reported in Johnson or Sheridan counties (Table 2).

RECOMMENDATIONS

- 1). Continue the season structure as it presently exists.
- 2). Continue monitoring and reporting 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 |
|-------------------|--------------------------|--------------------------|-------------------|---------------|------------|
| 2002 | 54 | 15 | 22 | 09/14 - 11/10 | 58 |
| 2003 ^a | 50 | 10 | 7 | 09/13 - 11/09 | 58 |
| 2004 ^a | 61 | 16 | 4 | 09/18 - 11/14 | 58 |
| 2005 ^a | 68 | 24 | 16 | 09/17 - 11/13 | 58 |
| 2006 ^a | 78 | 25 | 20 | 09/16 - 11/12 | 58 |
| 2007 ^a | 58 | 19 | 20 | 09/15 - 11/11 | 58 |
| 2008 ^a | 73 | 24 | 24 | 09/13 - 11/9 | 58 |
| 2009 ^a | 62 | 67 | 8 | 09/19 - 11/15 | 58 |
| 2010 ^a | 86 | 29 | 25 | 09/18 - 11/14 | 58 |
| 2011 ^a | 86 | 41 | 20 | 09/17 - 11/13 | 58 |
| TEN-YEAR AVERAGE | 68 | 27 | 17 | | |

^a Preliminary

Source: USFWS. Status and harvest of sandhill cranes; mid-continent and Rocky Mountain populations, 2012.

Table 2. Harvest statistics for Area 7 hunting of Mid-continent sandhill cranes, 2011.

| County | NUMBER OF PERMITS ISSUED | ACTIVE CRANE HUNTERS ^a | NUMBER OF DAYS AFIELD | RETRIEVED HARVEST |
|--------------|--------------------------|-----------------------------------|-----------------------|-------------------|
| Cambell | | 0 | 0 | 0 |
| Converse | | 7 | 10 | 0 |
| Crook | | 0 | 0 | 0 |
| Goshen | | 11 | 48 | 0 |
| Johnson | | 0 | 0 | 0 |
| Laramie | | 0 | 0 | 0 |
| Niobrara | | 0 | 0 | 0 |
| Platte | | 16 | 58 | 16 |
| Sheridan | | 5 | 14 | 5 |
| Weston | | 0 | 0 | 0 |
| Unknown | | 0 | 0 | 0 |
| TOTAL | 86 | 39 | 130 | 21 |

Source: USFWS. Division of Migratory Bird Management, Branch of Harvest Surveys, 2012.

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

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CENTRAL MANAGEMENT UNIT OF MOURNING DOVES

PERIOD COVERED: September 1, 2011- August 31, 2012

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 2011 and 2012 surveys, Kansas, Nebraska, North Dakota and South Dakota had the highest average numbers of doves heard per route (range 36.2 to 48.9). 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 reported intermediate numbers of doves heard.

Based on call frequency data, dove abundance has declined in the CMU over the last 10 years and over the last 47 years. Missouri, Nebraska, North Dakota, Oklahoma and Texas are the individual states with decreases over the most recent 10 year period. During the 47-year period, no state had an increase in dove abundance. In Minnesota, Missouri, Montana, Nebraska, Oklahoma, Texas, and Wyoming, dove abundance decreased over the 47-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 2012, the numbers of doves heard and seen per mile were below the 10-year average. The number of routes surveyed was lower 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. In 2009, Wyoming's banding goals for the 4 BCRs in the state combined was 191 after hatching year (AHY) and 202 hatching year (HY) (393 total) mourning doves each year for an indefinite number of years.

In 2012, mourning doves were trapped and banded at two locations in BCR 18, Cheyenne and Downar Bird Farm. The banding goals for this BCR were 39 AHY and 41 HY for a total of 80. Bands were placed on 42 AHY, 26HY, and one unknown aged bird for a total of 69. See the Chapter 33 Permit 2012 Annual Report for mourning dove banding activities for more details.

HARVEST

Weather conditions in late August and early September greatly influence dove harvest in Wyoming. Weather conditions were moderate in 2011 and flocks of doves remained in the state throughout September and most of October.

The dove harvest and the number of hunters decreased in 2011 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).

RECOMMENDATIONS

1. Continue to conduct 18 mourning dove call-count routes in Wyoming. Determine why some routes are not being run on an annual basis.
2. Maintain historic hunting opportunity.
3. If resources allow, participate in the national dove banding program.



Figure 5. Locations of mourning dove call-count survey routes in Wyoming.

Table 1. Average number of mourning doves heard and seen during call-count surveys, 2003-2012.

| Year | Doves Heard | Doves Seen | Routes Run |
|------------------|-------------|------------|------------|
| 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 |
| 2010 | 8.2 | 3.2 | 17 |
| 2011 | 7.2 | 3.4 | 15 |
| 2012 | 6.5 | 3.5 | 15 |
| Ten-Year Average | 9.7 | 4.9 | 16 |

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) |
|---------------------|---------|----------------|-----------------|-----------------|------------------|--------------------|----------------------------|
| 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 |
| 2010 | 2,528 | 8,096 | 3.20 | 28,906 | 11.43 | 15/30 | 70 |
| 2011 | 2,291 | 6,735 | 2.94 | 23,607 | 10.30 | 15/30 | 70 |
| TEN-YEAR AVERAGE | 2,429 | 8,048 | 3.29 | 31,495 | 12.91 | | |

Source: WGFD. Annual Report of Upland Game and Furbearer Harvest, 2002-2012.

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

| YEAR | ACTIVE HUNTERS | DAYS AFIELD | DAYS/ HUNTER | DOVE HARVEST | HARVEST/ HUNTER |
|---------------------|-------------------|----------------|-----------------|-----------------|--------------------|
| 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% |
| 2010 ^a | 2,700+/-26% | 7,100+/-32% | 2.63 | 32,100+/-36% | 12.0+/-45% |
| 2011 ^a | 2,700+/-30% | 5,100+/-38% | 1.89 | 25,000+/-52% | 9.3+/-60% |
| TEN-YEAR AVERAGE | 2,800 | 6,810 | 2.45 | 32,760 | 11.67 |

Source: USFWS. HIP final and preliminary^a harvest estimates.

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CENTRAL MANAGEMENT UNIT OF COMMON SNIPE

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 increased in Wyoming and were stable in the United States and in Canada from 1966-2010.

HARVEST

Snipe hunting and harvest in Wyoming have varied markedly during the past 10 years (Table 1). The WGFDD discontinued the state survey of snipe harvest and hunter activity after 2009. 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 |
|-------------------|----------------|-------------|-------------|---------------|-------------------------------|
| 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% |
| 2010 ^a | 400+/-89% | 600+/-92% | 1.50 | 1,200+/-129% | 3.2+/-157% |
| 2011 ^a | 100+/-184% | 200+/-174% | 2.00 | 400+/-179% | 4.1+/-256% |
| AVERAGES | 185 | 335 | 1.89 | 550 | 3.30 |

Source: USFWS. HIP final and preliminary^a harvest estimates.

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CENTRAL MANAGEMENT UNIT - VIRGINIA AND SORA RAILS

PERIOD COVERED: September 1, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

POPULATION SURVEY

Populations of Virginia rail have declined in some locations, particularly the Midwest and Northeast 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 Wyoming, the United States and Canada, from 1966-2010. During the same period, sora rails increased in Wyoming and the United States, but decreased in Canada. 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). The WGFD discontinued the state survey of rail harvest and hunter activity after 2009. 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 |
|-------------------|----------------|-------------|-------------|--------------|------------------------------|
| 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 |
| 2010 ^a | <50+/-155% | <50+/-155% | 1.00 | 0 | 0 |
| 2011 ^a | 0 | 0 | 0.00 | 0 | 0 |
| AVERAGE | 15 | 15 | 0.30 | 10 | 0.2 |

Source: USFWS. HIP final and preliminary^a harvest estimates.

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AMERICAN COOT POPULATION

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 decreased in Wyoming and Canada, and was stable throughout the United States from 1966-2010.

HARVEST

The number of coot hunters was unchanged, harvest decreased, and hunter days increased last year (Table 2). The WGFD discontinued the state survey of American coot harvest and hunter activity after 2009. 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). Ten-year averages of hunter numbers and harvest were similar between the two surveys. .

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 |
|-------------------|-------------------|----------------|-----------------|-----------------|-------------------------------------|
| 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% |
| 2010 ^a | 200+/-127% | 200+/-108% | 1.00 | 600+/-115% | 3.3+/-171% |
| 2011 ^a | 200+/-129% | 500+/-148% | 2.50 | 100+/-124% | 0.5+/-179% |
| AVERAGE | 130 | 250 | 1.95 | 290 | 3.2 |

Source: USFWS. HIP final and preliminary^a harvest estimates.

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AMERICAN CROW

PERIOD COVERED: September 1, 2011 - August 31, 2012

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 1996-2010 in Wyoming and throughout the United States, but decreased in 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 to identify a sample frame for 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 |
|------|--------------------------|-----------------------|
| 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 |
| 2010 | November 1 - February 28 | None/None |
| 2011 | November 1 - February 28 | None/None |

Source: WGFD, Migratory Game Bird Regulations.

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American Crow

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TRUMPETER AND TUNDRA SWAN POPULATIONS

PERIOD COVERED: September 1, 2011- August 31, 2012

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, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

It is our intent to complete a comprehensive inventory report for inclusion in the 2013 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, 2011 - August 31, 2012

PREPARED BY: Larry Roberts, Migratory Game Bird Biologist

RESULTS:

INTRODUCTION

Springer/Bump-Sullivan Reservoir and Table Mountain Wildlife Habitat Management Areas (WHMA) are the principal public goose hunting areas in Goshen County. The Bump-Sullivan area has been a popular goose hunting area for over 50 years. A Managed Goose Hunt was begun there during the 1993-94 season.

For the 2011/12 dark goose hunting season in Goshen County the WGFD decided not to offer a Bump-Sullivan Managed Goose Hunt. This decision was based on a low participation rate the previous year. Hunters were not required to register in any way prior to goose hunting in managed goose hunt area.

RECOMMENDATIONS

1. Back fill dirt, rip rap, and stabilize all reservoir pits as necessary. This requires NEPA and ESA documentation and coordination. Work should begin during the spring of 2013, prior to the high water period in the reservoir.
2. Annually mow a path to each pit and the parking areas. This reduces the effort required to haul decoys and equipment and creates a path to each pit that is easy to follow in the dark prior to shooting hours.
3. Continue annual pit maintenance.
4. Replace lower section of pits as needed.

Bibliography
Bump-Sullivan Goose Hunt

Roberts, L. D. 2002. Job completion report, Migratory game birds, 2002. WGFD, Cheyenne , WY.