IDAHO DEPARTMENT OF FISH AND GAME

Virgil Moore, Director

Surveys and Inventories

FY2016 Statewide Report

Waterfowl Fall and Winter Surveys, Production, and Harvest (October 2015-March 2016),

Waterfowl Spring Surveys and Summer Banding (April 2016-September 2016)

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STUDY NAME: Waterfowl Population Status, Trends, Use, and Associated Habitat Studies

PERIOD COVERED: October 1, 2015 to March 31, 2016

WATERFOWL FALL AND WINTER SURVEYS, BANDING, AND HARVEST

ABSTRACT

The results of harvest surveys and the Mid-Winter Waterfowl Survey are summarized and discussed. The U.S. Fish & Wildlife Service (USFWS) estimated duck harvest was down 28% and goose harvest was down 40% from 2014-2015 levels. The Department discontinued a separate waterfowl harvest survey for Idaho during 2010. Idaho held light goose hunts from 27 November to 10 March, 2016 in the Southwest and Magic Valley regions, and 13 February to 10 March, 2016 in a portion of the Southeast Region. The Mid-Winter Waterfowl Survey was conducted in portions of the Clearwater Region in January 2016. The Department discontinued the aerial portion of the Mid-Winter Waterfowl Survey in 2011.

YOUTH WATERFOWL HUNT

The USFWS again offered all states the option of holding a two-day youth waterfowl hunt during the 2015-2016 season. Pacific Flyway states that chose the option were required to reduce their regular seasons by two days so as not to exceed the 107-day maximum length for migratory bird seasons. States were permitted to hold the hunt outside the regular season framework, but regular-season limits applied. The Commission selected the option, and chose September 26-27 in Area 1 and October 3-4 in Area 2.for the youth hunt. It was open to youth 12-15 years-of-age and full duck (including merganser), coot, and goose limits applied to participants.

STUDY OBJECTIVES

1. Determine production and trends of resident waterfowl.
2. Estimate waterfowl harvest, hunter participation, and hunter opinions.
3. Determine waterfowl movements, distribution, and survival rates.

PROCEDURES

1. Conduct fall and winter aerial counts of waterfowl.
2. Evaluate the usefulness of fall surveys and consider new techniques to assess waterfowl numbers.
3. Conduct a telephone survey of hunting license buyers.
4. Operate check stations or field checks.

5. Band waterfowl and monitor movements and survival rates.

Harvest data were collected and analyzed by the Bureau of Wildlife. Personnel stationed in the state's seven regions and one sub-region collected all other data.

RESULTS

DUCKS (ALL SPECIES)

Current Management Plan Goals

1. Reverse the decline in the number of duck hunters.
2. Reverse the decline in duck harvest.
3. Determine duck nesting success at least twice (every other year) on all Wildlife Management Areas (WMAs) where waterfowl production is a priority.
4. Maintain a 30% nest success for upland nesting ducks on WMAs where waterfowl production is a priority.
5. Develop and implement a predator management strategy for priority WMAs where nest success is less than 30%.
6. Establish duck production surveys in at least one region in cooperation with the USFWS.

Management Areas

Background and Management Philosophy: See the 2007 Waterfowl Annual Reports (Study II, Jobs 2 & 3) for a thorough history of the duck management areas in Idaho.

For the 2015-2016 season, the USFWS offered a 107-day season for ducks, snipe, and coot statewide. The regular season was 105 days with no split, and the two-day youth waterfowl season was held September 26-27 in Area 1 and October 3-4 in Area 2.

The description, season framework, and bag and possession limits for each Management Area are found in Appendix A.

Population Surveys

During 2010, two helicopter crashes occurred with Department personnel on board. In one instance, the pilot and both passengers sustained serious injuries, and in the other the pilot and both passengers were fatally injured. As a result, the Department conducted a flight safety review during which needs/risk assessment were completed. As a result, Mid-Winter Waterfowl surveys have not been conducted since 2011. (See Waterfowl Statewide Report 2013). Ground-based Mid-Winter Waterfowl surveys were conducted in the ClearwaterRegion in 2016.

In 2015, the estimated mallard abundance was 11.6 million birds, which was similar to the 2014, and 43% above the long-term average (USFWS 2015a). Western mallards consist of two substocks and are defined as those birds breeding in Alaska and those birds breeding in California and Oregon. Estimates of the size of these subpopulations have varied from 0.28 to

0.84 million in Alaska since 1990 and 0.26 to 0.69 million in California-Oregon since 1992. The total population size of western mallards has ranged from 0.72 to 1.40 million. For 2014, the estimated breeding-population size of western mallards was 0.73 million (SE = 0.08 million), including 0.47 million (SE = 0.06 million) from Alaska and 0.26 million (SE = 0.06 million) from California-Oregon (USFWS 2015b).

Harvest Characteristics

Telephone Survey: In an effort to reduce costs and increase efficiency, the Department discontinued annual telephone harvest surveys for waterfowl in 2010. The USFWS annually estimates statewide harvest through the Federal Migratory Game Bird Harvest Information Program Harvest (Table 1).

Federal Migratory Game Bird Harvest Information Program: The goal of the program is to obtain improved harvest estimates for all species. By federal mandate, states provide the USFWS with names and addresses of all migratory game bird hunters, from which the USFWS draws a sample of hunters to survey. The Department has complied fully with the USFWS's request for information every year since the 1997-1998 season. The USFWS estimated 173,700 ducks were harvested in Idaho during the 2014-2015 hunting season, which was down 28% from 2013-2014 estimates. According to USFWS Harvest Information Program estimates, the number of active adult duck hunters in Idaho was 11,849 (Table 1). Unfortunately, the company that provided the USFWS with Idaho hunter information for the 2015-2016 season did not do so in a timely fashion. Consequently, both number of hunters and associated harvest estimates are much lower than anticipated.

Waterfowl check stations were operated at the Boundary Creek, Pend Oreille, and Coeur d'Alene River WMAs on the opening Saturday and Sunday of the 2015-2016 duck season. A total of 68 hunters expended 110 hours of effort to harvest 185 ducks (2.7 ducks/hunter; 0.6 hours/duck). American widgeon and green winged teal comprised 36% and 30% of the harvest, respectively.

Management Implications

The Department continued to meet its 1991-1995 Waterfowl Management Plan (WMP) goals to reverse the decline in the number of duck hunters and ducks harvested. However, the WMP is outdated and needs to be updated to reflect current waterfowl management issues in Idaho.

See the 2007 Waterfowl Annual Reports (Study II, Jobs 2 & 3) for a thorough history of the Idaho migratory waterfowl stamp and how the revenue it generated was spent. Currently, there is an annual budget of $155,700 in the Habitat Improvement Program (HIP) for waterfowl habitat improvement or enhancement.

Future management will be directed toward improving and restoring wetland habitat to attract more ducks and other wetland birds as they migrate through Idaho. Habitat improvement will seek to increase local production and improve wetland function across the landscape.

GEESE (ALL SPECIES)

Current Management Plan Goals

1. Increase Idaho's breeding Canada goose populations and wintering populations.
2. Increase the annual goose harvest to 50,000 birds.
3. Maintain the average number of geese harvested per hunter per season above 3.0.
4. Increase hunter days to 130,000 annually.

Management Areas

Background and Management Philosophy: Historically, the Pacific Flyway Council has recognized two populations of western Canada geese for management purposes (Subcommittee on Rocky Mountain Population Canada Geese 2000). They include the Rocky Mountain Population (RMP) and the Pacific Population (PP). Both populations occur in Idaho (Figure 1). However, during 2013 the Pacific Flyway Study Committee began the review process to update a management plan for western Canada geese that will combine both populations into one management plan. See the 2007 Waterfowl Annual Reports (Study II, Jobs 2 & 3) for a thorough history of the goose management areas in Idaho.

For the 2015-2016 season, the USFWS offered a 107-day season for geese statewide. The regular season for dark geese was 105 days with no split, and the two-day youth waterfowl season was held September 26-27 in Area 1 and October 3-4 in Area 2. The duck and dark goose seasons have opened concurrently since the 2003-2004 waterfowl season.

During the 2008-2009 regulations cycle, the Pacific Flyway Council extended the white goose framework for Interior states to March 10. During 2015-2016, Idaho implemented a split light goose season in Area 4, which includes portions of the Magic Valley, Southeast, and Upper Snake regions in the American Falls Reservoir area. The season dates were from October 30, 2015 to 15 January, 2016 and February 13 to March 10, 2016 to allow for hunting in late February and early March. In Area 3, in the southwest part of Idaho, there was a 105-day light goose season from November 27, 2015 to March 10, 2016. When all other waterfowl and migratory game bird hunting seasons, except falconry, are closed, recorded or electrically amplified bird calls or imitations of bird calls, and unplugged shotguns capable of holding more than three shells may be used to hunt light geese. The remainder of the state had light goose seasons concurrent with duck and Canada goose seasons.

During the 2013-2014 season, seasons for white-fronted and Canada geese were separated to allow a 107-day white-fronted goose season that extends beyond the last Sunday in January. In Area 3, in the southwest part of the state, seasons for white-fronted geese and light geese – snow and Ross's geese – were open at different times for part of the season, with the white-fronted goose season open from November 9, 2015 through February 21, 2016. The remainder of the state had white-fronted goose seasons concurrent with duck and Canada goose seasons.

The description, season framework, and bag and possession limits for each Management Area are found in Appendix A.

Population Surveys

During 2010, two helicopter crashes occurred with Department personnel on board. In one instance, the pilot and both passengers sustained serious injuries, and in the other the pilot and both passengers were fatally injured. As a result, the Department conducted a flight safety review during which needs/risk assessment were completed. Aerial Mid-Winter Waterfowl surveys were discontinued in 2011.

Harvest Characteristics

Telephone Survey: In an effort to reduce costs and increase efficiency, the Department discontinued annual telephone harvest surveys for waterfowl in 2010. The USFWS annually estimates statewide harvest through the Federal Migratory Game Bird Harvest Information Program Harvest.

The Department used a mail-in/telephone survey to estimate light and white-fronted goose harvest from spring seasons in 2014 and 2015. Harvest surveys were not conducted for the 2016 spring seasons.

Federal Migratory Game Bird Harvest Information Program: The goal of the program is to obtain improved harvest estimates for all species. By federal mandate, states provide the USFWS with names and addresses of all migratory game bird hunters, from which the USFWS draws samples of hunters to survey. The Department has complied fully with the USFWS's request for information every year since the 1997-1998 season. The USFWS estimated 44,100 geese were harvested in Idaho during the 2015-2016 hunting season, which was down 40% from 2014-2015 estimates (Table 1). Unfortunately, the company that provided the USFWS with Idaho hunter information for the 2015-2016 season did not do so in a timely fashion. Consequently, both number of hunters and associated harvest estimates are much lower than anticipated.

Management Implications

Idaho hunter information was not transferred to the USFWS in a timely fashion for the 2015-2016 seasons; therefore, accurate harvest information metrics were not estimated for this reporting period. During the previous reporting period, the Department met its 1991-1995 WMP goal for total harvest and harvest per hunter per season, but did not meet the goal for total days hunted statewide. However, the WMP is outdated and needs to be updated to reflect current waterfowl management issues in Idaho.

The Department will continue to implement the HIP program (discussed previously in the duck section) to improve wetland habitat for Canada geese and other wetland birds. Goose depredation problems are becoming significant in some urban areas and will require new strategies to manage these nuisance birds.

SANDHILL CRANE

The Department's goals and objectives for the sandhill crane are the same as those for the Pacific Flyway (Subcommittee on Rocky Mountain Population Greater Sandhill Cranes 2007), which is available at the Pacific Flyway website at: www.pacificflyway.org.

The RMP sandhill crane population continued to receive increased management emphasis during the reporting period in the Magic Valley, Southeast, and Upper Snake regions because of continued landowner concerns over crop damage. Surveys of RMP greater sandhill cranes in these three regions were initiated in 1995 to document total sandhill crane numbers, arrival dates, distribution, and age ratios.

TRUMPETER SWAN

The Department's goals and objectives for the trumpeter swans are the same as those for the Pacific Flyway (Subcommittee on Rocky Mountain Population Trumpeter Swans 2012), which is available at the Pacific Flyway website at: www.pacificflyway.org.

TUNDRA SWAN

The Department's 1991-1995 WMP goals for tundra swan are to: (1) maintain current migrations through Idaho, and (2) meet the demand for non-consumptive use. However, during the reporting period, this species received little management emphasis in Idaho. This is because the tundra swan is not currently hunted in the state, and the species benefits indirectly from other wildlife management programs.

AMERICAN COOT

The Department's 1991-1995 WMP goals for American coot are to: (1) maintain Idaho's population, (2) increase the harvest, and (3) provide maximum recreational opportunity. However, this species received little management emphasis during the reporting period. This is because the American coot is not a popular game bird in Idaho and because it benefits indirectly from other wildlife management programs.

WILSON'S SNIPE

The Department's 1991-1995 WMP goals for Wilson's snipe are to: (1) maintain Idaho's Wilson's snipe population and (2) maintain the harvest. However, during the reporting period, this species received little management attention. This is because the Wilson's snipe is not a popular game bird in Idaho and because it benefits indirectly from other wildlife management programs.

STATEWIDE REPORT

SURVEYS AND INVENTORY

JOB TITLE: Waterfowl Spring Surveys and Summer Banding

STUDY NAME: Waterfowl Population Status, Trends, Use, and Associated Habitat Studies

PERIOD COVERED: April 1, 2016 to September 30, 2016

WATERFOWL PRODUCTION AND SUMMER BANDING

ABSTRACT

In 2016, 1,647 mallards were banded in Idaho. Since 2009, over 12,000 mallards have been banded by Department personnel in Idaho. In 2016, active nests of Pacific Population (PP) Canada geese were counted on the Boundary Creek and McArthur Lake WMAs; 62 nests were located. Aerial Canada goose breeding pair surveys were discontinued in 2011. Furthermore, the Pacific Flyway Study Committee is currently revising the management plan for the Rocky Mountain and Pacific populations of Canada geese. As part of this process, new survey methodologies are being considered.

The combination fixed-wing and ground count of sandhill crane in September was completed in 2016. A total of 5,445 cranes were counted in Idaho. In 2016, 465 sandhill crane tags were available on a first-come first-served basis. The hunts were held in September in 5 areas and an estimated 258 cranes were harvested.

Tundra swans, American coots, and Wilson's snipe received little management emphasis; these species benefit from statewide programs aimed at other species. Department management area descriptions: duck, goose, and sandhill crane hunting season structures, and bag and possession limits for the previous season are provided in Appendix A.

STUDY OBJECTIVES

1. Determine production and trends of resident waterfowl.
2. Determine movements, distribution, and survival rates of resident waterfowl.

PROCEDURES

1. Conduct Canada goose breeding pair aerial surveys and nest searches for specific survey areas and implement a triggering mechanism for determining when to reduce the goose harvest.
2. Band locally-produced waterfowl and monitor movements and survival rates.
3. Trap Canada goose goslings and transplant them into areas where new flocks may be started or to supplement existing low populations.

REGIONAL REPORTS

DUCKS (All Species)

Panhandle Region

Population Surveys: Approximately 258 wood duck nest boxes located in the Panhandle were available for nesting in 2016. A total of 233 boxes were evaluated. Cavity-nesting ducks (wood ducks, common goldeneye, bufflehead, and hooded mergansers) utilized 139 (60%) of the boxes evaluated and all species had a 74% nest success. Wood ducks comprised 44% of the nest box use and had 70% nest success. Hooded Mergansers used 17% of the boxes and had 74% nest success.

Breeding pair surveys were only conducted on Boundary Creek WMA in 2016. One breeding pair survey was conducted in May counting a total of 184 breeding duck pairs. The dominant breeding duck species in the Panhandle are mallards, wood ducks, and to a lesser extent, redhead and ring-necked ducks.

Trapping and Transplanting: A total of 1,661 ducks were trapped and banded by Department personnel in the Panhandle Region during August and September 2016 (Tables 1 and 2). Mallards comprised 57% of the sample. Increased effort to band cinnamon teal resulted in 378 teal banded at CDAWMA. Banding occurred at the Coeur d'Alene River, McArthur Lake, and Boundary Creek WMAs, and Kootenai National Wildlife Refuge. No transplanting projects were conducted.

Management Studies: Since 1991, a total of 23,441 locally-produced ducks have been banded during breeding season at the Boundary Creek, McArthur Lake, Pend Oreille, and Coeur d'Alene River WMAs.

Waterfowl check stations were operated at the Boundary Creek, Pend Oreille, and Coeur d'Alene River WMAs on the opening Saturday and Sunday of the 2015 duck season. A total of 68 hunters expended 110 hours of effort to harvest 185 ducks (2.7 ducks/hunter; 0.6 hours/duck). American widgeon and green-winged teal comprised 36% and 30% of the harvest, respectively.

Management Implications: The installation of nest boxes in appropriate wetland habitat throughout the Panhandle Region has significantly increased production of cavity-nesting ducks, as seen in the significant percentage of wood ducks in the opening weekend waterfowl check station survey. Although wood ducks are the target species for this effort; common goldeneye and hooded mergansers also frequently use these boxes. Through HIP, many of these nest boxes are now placed on private lands and contribute to the overall improvement in duck production throughout the region.

Clearwater Region

Population Surveys: The Mid-Winter Waterfowl Survey was not conducted in 2016.

A small breeding population of wood ducks nests in the Clearwater Region. From 1988-1998, in an attempt to enhancetheir presence, nest boxes were erected in conjunction with the Department's HIP program. A landowner survey of wood duck use of nest boxes was discontinued in 2005 due to poor return rates on data cards. Many of these structures are no longer usable. Since 2001, the U.S. Army Corps of Engineers has installed over 30 wood duck nest boxes along the lower Snake and Clearwater River levee ponds and sloughs. A resident population resides in the valley and disperses out from this source.

Trapping and Transplanting: No ducks were banded in the Clearwater Region during this reporting period.

Management Implications: The development of ponds and shallow water areas through the HIP program has improved local duck nesting in the region, though no production surveys are conducted to monitor this.

Southwest (Nampa) Region

Population Surveys: No surveys for estimating duck nesting success and production were conducted on WMAs during the reporting period.

Trapping and Transplanting: A total of 657 ducks were trapped and banded by Department personnel in the Southwest Region during August and September 2016 Increased effort to band cinnamon teal resulted in 137 teal banded at CJ Strike WMA.
Disease Testing: Department staff cooperated with USDA-Wildlife Services to collect avian influenza samples from hunter-harvested birds during the 2015-2016 season. Samples were also collected from live birds during banding activities in August 2016.

Habitat Conditions: No regional wetland surveys are conducted; therefore, the exact extent of wetlands is unknown. The waterfowl production from these wetlands is also unknown.

Management Implications: No new wetlands have been created during this reporting period.

Prescribed fire and herbicide are being used on WMAs to open up dense stands of vegetation. Opening these stands will make them more attractive and productive to waterfowl broods.

Southwest (McCall) Region

Population Surveys: No population surveys are conducted for ducks in the McCall sub-region. Ducks are numerous and mostly associated with the Lake Cascade ecosystem.

Various local groups, such as the Boy Scouts and Reservoir Association, erect wood duck nest boxes. No effort was made to monitor the number of boxes installed by these private organizations. Maintenance of these boxes is encouraged annually.

Trapping and Transplanting: No ducks were banded by the Southwest (McCall) Region during this reporting period.

Management Implications: The HIP program and other programs will be utilized to enhance duck nest production. Priority will be placed on projects that stabilize water levels and enhance nest production on Cascade Reservoir.

Magic Valley Region

Population Surveys: Magic Valley regional staff conducts an annual ground-based waterfowl survey in conjunction with the Mid-Winter Waterfowl Survey at Hagerman WMA. In January 2016 18,713 ducks were counted. Seven species of dabbler ducks and seven species of diver ducks were observed. Mallards were again the most abundant species (83%), and ring-necked ducks were second most abundant at 12%.

Habitat Conditions: Precipitation during the 2015-2016 winter was below or near average in all major watersheds in the Magic Valley Region. Snake River flows, as usual, were low during nesting season..

Trapping and Transplanting: No ducks were banded in the Magic Valley Region during this reporting period (Tables 2 and 3).

Management Implications: Although ducks are produced annually on the Hagerman, Niagara, Billingsley Creek, Centennial Marsh, and Carey Lake WMAs, much of the region's duck production occurs in cultivated areas along canals and near small reservoirs and stock ponds. In general, wetland habitats are limited in the region. At WMAs, where duck production is a priority, breeding pair and brood surveys are currently not conducted.

Southeast Region

Population Surveys: Duck nest success and brood surveys have been conducted on the Sterling WMA periodically since the mid-1990s. In 2016, 44 breeding pairs and approximately 4 broods were detected on the WMA with an estimated nest success rate of 9.0%. After incorporating species, observability correction factors the number of broods increased to 6.5 with an estimated nesting success of 14.7%. Water levels at American Falls Reservoir and all ponds on Sterling WMA were satisfactory during the nesting and brood-rearing season.

Predator Management: Graduate student research from 1993-1995 indicated high magpie populations on the Sterling WMA in association with dense Russian olive stands. Russian olive stands were removed in the late 1990s in an attempt to reduce predation and increase waterfowl nest success. Subsequent field observations suggested that mammalian predators began to replace magpies following tree removal. Mammalian predator removal efforts were initiated in 1997 and continued through 2009, but have not been carried out since. In 2016, nest searches and nest cameras were used to identify primary nest predators at Sterling WMA. All but one unsuccessful nest was characterized by all eggs disappearing and no egg shell fragments present and cameras indicated that these are likely magpie depredations. One nest that had egg shell fragments present was depredated by a skunk.

Trapping and Transplanting: 42 ducks were banded in the Southeast Region during this reporting period.

Waterfowl die-offs: One large die-off occurred on American Falls Reservoir during the 2009 reporting period where over 20,000 waterfowl and water birds died due to an avian botulism outbreak. Another, much smaller (~ 250 waterfowl), botulism outbreak occurred in the Shelly City Sewer lagoon during the 2009 reporting period. In August 2010, one small botulism outbreak where approximately 20 ducks died occurred at an industrial settling pond. Climatic conditions during this reporting period, however, were more favorable and no botulism or other waterfowl die-offs were detected.

Upper Snake Region

Population Surveys: No waterfowl brood counts were conducted during this reporting period.

Habitat Conditions: Most ducks in the region are produced on Market Lake and Mud Lake WMAs and Camas National Wildlife Refuge (NWR). Duck production on all of these areas is influenced by water levels. Abnormally wet or dry years can reduce production. Numerous other areas of duck habitat, ranging from small beaver ponds and potholes to riparian communities along the Snake River occur throughout the region. Some areas are severely impacted by livestock grazing while other areas are impacted by irrigation withdrawal, invasive noxious weeds, or housing development. The region is working with private landowners, local weed control areas, the Bureau of Land Management (BLM), U.S. Forest Service, Natural Resource Conservation Service, and other non-government groups to improve the quality of nesting and brood-rearing habitat through HIP.

The best wood duck habitat in the region is on the North Fork Snake River below St. Anthony, the South Fork Snake River below Burns Creek, and the Snake River above Roberts. These areas have excellent cottonwood riparian communities and numerous slow-flowing and backwater sloughs. Except for Cartier Slough WMA, Deer Parks WMA, and the Warm Slough Access Area, the land ownership is a mix of private and BLM lands. Market Lake, Mud Lake, and Sand Creek WMAs have limited wood duck nesting habitat around the edges of marshes and ponds.

Habitat Improvements: On Market Lake WMA, 80 acres were planted and left standing for waterfowl and upland game use.On Mud Lake WMA, 300 acres were planted to food plots to benefit waterfowl and upland game in 2016. On Chester Wetlands and Sand Creek WMAs, 25 acres of food plots were planted to improve habitat for waterfowl as well as 25 acres in 2016. On Deer Parks Wildlife Mitigation Unit (WMU), 110 acres were planted and left standing for waterfowl in 2016.

Trapping and Transplanting: No ducks were trapped for transplanting in the Upper Snake Region during this reporting period. Habitat biologists banded 271 ducks during this reporting period.

Waterfowl Die-offs: No waterfowl die-offs occurred during this reporting period.

Depredation: No depredation complaints were received during this reporting period.

Predator Control: Hunters and trappers remove some predators during normal furbearer seasons.

Management Implications: Management direction in the 1991-1995 WMP is to maintain at least 30% duck nesting success on important duck-producing WMAs and increase duck production by improving nesting habitat on WMAs and through HIP. Production surveys are to be used on WMAs where duck production is a priority to monitor production and measures taken to increase production where it is low.

Nest success has not been monitored since the early 1990s. Mayfield nest success estimates at Market Lake WMA were around 20% each year that surveys were done. This is below the objective of 30% for the WMA. Nest predation appeared to be caused by both avian and mammalian predators. Mammalian predation appeared higher on nests in large *Juncus* habitat blocks while avian predation appeared higher in fragmented cattail and hardstem bulrush habitat patches.

Results from nest searches and nest success estimates on Market Lake suggest that ducks are not using some plant communities for nesting. Very few nests were found in the old *Juncus* meadows. Reseeding at least some of these communities to cover providing more structure (e.g., a rank bunchgrass) should be considered and the areas then monitored for nest attempts and success.

Duck nest surveys conducted on Mud Lake WMA generally indicated above 30% nesting success.

The region has some excellent wood duck habitat along the Snake River but has lacked nesting boxes. Adopt-A-Wetland groups and habitat biologists have placed some nesting boxes along the Snake River. Incidental observations suggest a wood duck nesting population has established along the Snake River. Eight new wood duck boxes were installed on Gem State WHA.

Salmon Region

Population Surveys: No population surveys are conducted for ducks in the Salmon Region.

Trapping and Transplanting: No ducks were banded in the Salmon Region during this reporting period.

Wood duck nest boxes in the region were not visited and cleaned.

GEESE (All Species)

Panhandle Region

Population Surveys: Canada goose nest surveys were conducted on the Boundary Creek and McArthur Lake WMAs in 2016 (Figure 2). A total of 62 nests were located. Sixty two nest platforms were checked with a total of 22 active platforms had active nests for a use rate of 35%.

Trapping and Transplanting: No Canada geese were banded or transplanted in the Panhandle Region during the reporting period.

Management Implications: Canada goose nesting initially increased in the Panhandle Region in response to the placement of man-made nest structures and a gosling transplant program. Production declined in the early 2000's, presumably in response to a lack of platform maintenance. An increased emphasis was placed on maintaining existing nest structures beginning in 2005, and the number of nesting geese initially increased. The number of nesting geese appears to be stable to increasing. Maintenance of nest platforms is no longer a management priority.

HIP has significantly increased the number of nest structures erected on private property since 1988. There are more structures on private land than there are on Department property; however these are not surveyed at this time.

Clearwater Region

Population Surveys: An established flock of PP Canada geese nest in the Clearwater Region. These birds nest along roughly the lower 22 miles of the Clearwater River, primarily from Lewiston upstream to Peck. The 2014 breeding pair survey of this area resulted in a count of 51 indicated pairs and a total of 97 Canada geese . The Canada good breeding pair survey was not conducted in 2016. Numbers of active nests in this area were counted consistently from 1981 through 2006. Nesting success had been enhanced in this area with man-made nest structures placed on islands in the 1980s and early 1990s. Consistent data collection of goose nest structure use in the Clearwater Region began in 1988. The number of structures peaked at 80 in the early 1990s. Issues related to a burgeoning population in the late 1990s resulted in a change in management direction. The total number of structures slowly declined as those found unserviceable were removed. The last structures were removed after the 2006 nesting season. Management direction will encourage natural ground nesting on the islands

Additional areas were surveyed for Canada goose nests beginning in 1992. These included farm ponds in the region where nesting structures were issued to landowners, and Mann Lake, Middle Fork Clearwater River, Palouse River, Potlatch River, and Red River. These surveys have been discontinued, as they applied to nest structure use only. Poor return rates on data cards were another factor in discontinuing this survey. Few of these structures remain intact for use by geese.

The ground-based, Mid-Winter Waterfowl Survey was discontinued in 2016.

Depredation: The number of goose complaints remained low over the reporting period. Increased hunting pressure and harvest, in and around past depredation complaint areas has effectively reduced calls concerning crop damage. Three complaints of crop damage were taken involving Canada geese. The lack of complaints reported around the Mann Lake area likely are a result of the Department's reduction in the size of the waterfowl hunting closure in 2001.

Trapping and Transplanting: No Canada geese were trapped or transplanted in the Clearwater Region during the reporting period.

Management Studies: Problems associated with large numbers of geese at local parks, golf courses, and the Lewiston airport have subsided somewhat due to favorable habitat conditions and dispersal of birds. No trapping operations were conducted this year.

To address concerns about Canada geese in the urban environment of the Lewiston-Clarkston valley, interested parties continue to work together to apply management options available to control local goose numbers. Deterrent measures such as hazing and vegetation manipulation have been conducted by private businesses, state, and federal agencies in the area.

In 2004, the U.S. Army Corps of Engineers (USACE) applied for a limited permit from the USFWS to take waterfowl using egg-addling in specified areas on the Washington levee system and associated parks, and on one island shared by both Washington and Idaho. These sites were determined to have heavy nesting concentrations within city limits. Much of the local goose problem is tied to these areas. The USACE now annually treats between 30 to 60 nests in specified areas. The program is reportedly reducing the level of complaints and human health issues related to the local goose population.

Management Implications: Beginning in 2007, the region changed the method of monitoring Canada geese on the lower Clearwater River (Survey Area 5) from structure and ground nest searches to a pair and total goose count. Survey Area 6 was dropped as it tracked only the use of nest structures issued to landowners throughout the region. These structures are no longer being maintained for goose nesting and most have been removed. The adjusted management objectives for Survey Area 5 are a minimum of 40 breeding pairs and minimum of 100 total geese. Canada goose nesting surveys have been put on hold as the Pacific Flyway Study Committee revises the management plan for the Rocky Mountain and Pacific populations of Canada geese. As part of this process, new survey methodologies are being considered.

Southwest (Nampa) Region

Population Surveys: The breeding pair flight survey for geese was discontinued in 2011 due to safety concerns.

Climatic Conditions: Precipitation in the Southwest Region was near or below average during winter in the Weiser, Bruneau, Boise, Payette, and Owyhee basins. Precipitation during spring and early summer was below average in the Weiser, Bruneau, Boise, Payette, and Owyhee basins. Because no regional wetland surveys are conducted, the exact extent of wetlands is unknown. The waterfowl production from these wetlands is also unknown.

Trapping and Transplanting: No local geese (goslings or adults) were moved out of the urban area of Boise during this reporting period.

Disease Testing: No disease sampling was conducted in the region.

Management Implications: Breeding pair counts along the Snake and Payette Rivers have been below management objectives for six consecutive years (prior to 2011). This survey was curtailed in 2011 due to safety concerns. Canada goose surveys on the Deer Flat National Wildlife Refuge also detected a marked decline in production coinciding with spring pair counts (decrease of 45% from 10 year average).

During June 2011, Southwest Region personnel partnered with Boise Parks and Recereation to mark Canada geese with color-coded bands. The ratio of marked to unmarked geese were monitored throughout the year. Observations of geese in Boise parks, indicate only 2% of all birds observed in winter are marked. Whereas, 50% of all birds observed during spring/summer are marked. Because nuisance goose complaints occur during winter, managing "non-resident" nuisance geese during this period is challenging and likely unproductive. Juvenile geese banded in Meridian and Boise were reported as harvested in at least 7 states and 2 Canadian provinces.

Southwest (McCall) Region

Population Surveys: Dangerous water levels due to fluctuating water management precluded conducting population surveys in a timely manner on Snake River reservoirs (Brownlee, Oxbow, and Hells Canyon) during the reporting period. A population survey was conducted on Lake Cascade. A total of 190 geese was observed and 90 indicated pairs noted. The 3-year average for indicated pairs was 83, which is below the 3-year minimum monitoring criteria of 100 indicated pairs.

Nesting survey and nest structure use data were not collected during the reporting period. Distribution of existing goose nest structures is coordinated region-wide through HIP.

Trapping and Transplanting: No Canada geese were trapped or transplanted in the Southwest (McCall) Region during the reporting period.

Management Implications: The 1991-1995 WMP directs the Department to reduce the harvest when the three-year average falls below minimum objectives. The minimum objective for Lake Cascade is 225 geese observed and 100 indicated pairs. The 3-year average for indicated pairs is approximately at this objective. These monitoring criteria were developed for the plan without baseline data. Management objectives for these areas should be refined, using available data. These refined objectives should be incorporated into any updates to the 1991-1995 WMP. Canada goose nesting surveys have been put on hold as the Pacific Flyway Study Committee revises the management plan for the Rocky Mountain and Pacific populations of Canada geese. As part of this process, new survey methodologies are being considered.

Magic Valley Region

Population Surveys: Canada goose breeding pair surveys and Mid-Winter Waterfowl surveys were discontinued in 2011 per statewide direction. Magic Valley regional staff conduct an annual ground-based waterfowl survey in conjunction with the Mid-Winter Waterfowl Survey at Hagerman WMA. During January 2016, 1,604 Canada geese were counted.

Habitat Conditions: Precipitation during the winters of 2015-2016 was below or near average in all major watersheds in the Magic Valley Region. Snake River flows, as usual, were low during nesting season.

Depredation: Four goose depredation complaints were received during 2016. The majority of these complaints were from landowners in the Hagerman area. The increase in goose depredation complaints in the Hagerman area led to a change in the boundaries of the Hagerman goose closure in 2015-2016, which reduced the size of the closure.

Trapping and Transplanting: No Canada geese were trapped or transplanted in the Magic Valley Region during the reporting period.

Management Implications: Prior to 2011 when breeding pair surveys were discontinued, none of the survey areas in the region met both the minimum breeding pair and total geese criteria. Increased bag limits (from 2/day to 4/day), poor nesting conditions, and reduced availability of artificial nesting structures are all factors that may have contributed to decline in observed spring goose numbers. Many of the nesting structures in the Magic Valley were constructed in the late 1970s and are no longer functional or are located in areas that are no longer suitable. Current budget constraints and personnel shortages will negatively affect maintenance and monitoring of goose nest structures in the region except on WMAs.

Southeast Region

Population Surveys: Canada goose breeding pair surveys and Mid-Winter Waterfowl surveyswere discontinued in 2011 per statewide direction.

Trapping and Transplanting: No Canada geese were trapped or transplanted in the Southeast Region during this reporting period.

Management Implications: Prior to 2011 when breeding pair surveys were discontinued, goose populations were generally below the 1991-1995 WMP objectives (Connelly and Wackenhut 1990). No formal depredation complaints were filed with the Department during this reporting period; however, Wildlife Services personnel normally deal with waterfowl depredations.

Waterfowl die-offs: No die-offs were detected during this reporting period.

Upper Snake Region

Population Surveys: Two surveys (counts of indicated pairs and total geese) were conducted annually on RMP Canada geese to estimate breeding population trends through 2011. These flights were discontinued in 2011 for employee safety reasons.

Habitat Conditions: Most goose nesting on Department WMAs occurs on nesting structures. Nesting on the South Fork Snake River occurs on islands, while nesting at Camas NWR, in the Teton Basin, the North Fork Snake River, and Island Park Reservoir occurs primarily on the ground.

Habitat on the South Fork Snake River and lower Henrys Fork Snake River is being impacted by the invasion of noxious weeds. The Department is a cooperating partner with local weed control districts to address this problem.

Habitat in the Teton Basin is being lost to summer home development. The Department's HIP program has the potential to reduce this loss if landowner cooperation can be obtained.

Goose production along the South Fork is dependent upon water releases from Palisades Reservoir. The U.S. Bureau of Reclamation and the Department jointly researched river flows for optimal goose production during the early to mid-1970s. This study indicated flows between 8,000 and 16,000 cfs during nesting season were optimal for goose production. However, releases are scheduled to meet irrigation water rights and fisheries needs, which reduces goose production due to nest flooding most years.

Depredation: Canada goose nests located on islands in Gem Lake were oiled with corn oil under a permit from USFWS using license dollars. This effort has helped reduce goose depredations on grain fields near Gem Lake, south of Idaho Falls. Landowners around the Mud Lake WMA,and north of Idaho Falls on the Snake River have observed increased numbers of geese during this reporting period and requested assistance from the Department and the USFWS. Several landowners throughout the Upper Snake Region were provided snow fencing and zon guns to prevent goose depredations.

Predator Control Hunters and trappers remove some predators during normal furbearer seasons.

Trapping and Transplanting: During this reporting period, Market Lake WMA banded 26 with a regional total of 237 geese banded.

Waterfowl Die-offs: Over a period of several days in mid-March, approximately 335 migrating snow and Ross's geese were found dead at the Mud Lake and Market Lake WMAs while on their way north to their nesting grounds in western arctic. This is the second consecutive year when snow and Ross's geese were found dead during this time period in this portion of Idaho. Every spring, tens of thousands of snow geese migrate through Idaho to their nesting grounds in the arctic. While unfortunate, the death of a few hundred snow and Ross's geese will have no impact on the overall health of the populations

Snow and Ross's geese carcasses from Mud and Market Lake WMAs were collected and sent to the Department's Wildlife Health Lab for necropsy. Tissue and samples of forage items found in the geese were submitted to Washington Animal Disease Diagnostic Lab for diagnostic testing. All samples were positive for phosphine gas, confirming death was caused by some form of phosphide. It is unknown where the geese may have been exposed to a phosphide. Potential sources of phosphide include aluminum phosphide, magnesium phosphide, and zinc phosphide.

Habitat Improvements: No goose nesting structures were maintained and no new structures were added on the three respective WMAs. On Deer Parks WMU, 24 goose platform structures were maintained in 2016.

On Market Lake WMA, 80 acres were farmed during 2016. A variety of crops were planted as food plots and left standing for waterfowl and upland game. On Mud Lake WMA, 300 acres were planted to food plots to benefit waterfowl and upland game in 2016. On Chester Wetlands and Sand Creek WMAs, 25 acres of food plots were planted to improve habitat for waterfowl in 2016. On Deer Parks WMU, 110 acres were planted and left standing for waterfowl in 2016.

Management Implications: Canada goose production was increased in the region by erecting additional nest structures on the South Fork Snake River, Island Park Reservoir, and Teton River. Annual maintenance of structures on the South Fork was discontinued years ago and most have fallen into disrepair. There is no plan to rebuild these nest boxes due to increased resident populations and the potential for high depredations. Habitat biologists are also no longer servicing platforms on Island Park Reservoir because of conflicts with reservoir recreationalists.

Geese produced around Gem Lake cause annual depredations on malt barley. Goose nesting platforms were erected around Gem Lake as mitigation for the Idaho Falls hydropower project; however, no brood habitat was included in the mitigation plan. These geese are basically urban geese and difficult to harvest and control numbers. In 2014, the Department once again obtained permission from the USFWS to oil nests in Bonneville County. This appeared to decrease the level of depredation to an acceptable level. This work was accomplished utilizing license dollars under the Department's depredation prevention program.

Salmon Region

The Pacific Flyway Study Committee is currently revising the management plan for the Rocky Mountain and Pacific populations of Canada geese. As part of this process, new survey methodologies are being considered. In light of this, the Department has decided to postpone spring Canada goose surveys until the new methodologies have been designed and the management plan has been completed and approved by the Pacific Flyway Council.

Trapping and Transplanting: No Canada geese were trapped or transplanted in the Salmon Region during this reporting period.

SANDHILL CRANE

The Department's goals and objectives for Rocky Mountain Population (RMP) sandhill cranes are the same as those for the Pacific Flyway (Pacific Flyway Council and Central Flyway Council 2016).

Current Goals

1. Maintain the population between 17,000–21,000 cranes as measured by the recent 3-year average index of total cranes from the September pre-migration survey.

2. Maintain and protect suitable habitats in sufficient quantity and quality to support the population objective and recent past spatial distribution (Table 1), while encouraging population expansion where desirable.

3. Provide for recreational uses of RMP cranes.

4. Minimize crop depredations by RMP cranes.

The RMP sandhill crane population continued to receive increased management emphasis during the reporting period in the Magic Valley, Southeast, and Upper Snake regions because of continuing landowner concerns over crop damage. Surveys of RMP greater sandhill cranes in these three regions were initiated in 1995 to document total sandhill crane numbers, arrival dates, distribution, and age ratios.

Background and Management Philosophy: RMP greater sandhill cranes have caused crop damage in eastern Idaho for decades. In 1996, the Commission adopted rules that changed the classification of sandhill cranes from migratory nongame birds to migratory game birds and directed the Department to obtain Pacific Flyway Council and USFWS approval for an experimental controlled hunt in three areas. See the 2007 Waterfowl Annual Reports (Study II, Jobs 2 & 3) for a thorough history of the sandhill crane management areas in Idaho.

In 2009, the Commission authorized sandhill crane seasons that were no longer administered through controlled hunts. Tags are now available on a first-come first-served basis. This decision was made because the harvest allocation for Idaho had increased in recent years, but the number of birds harvested had remained relatively steady. In 2012, the number of tags was reduced from 680 to 460 due to a decline in the number of cranes observed during the September survey. In 2014, the daily and season limits were decreased to two cranes.In 2016, hunts in Bear Lake, Fremont, and Jefferson counties were expanded to include two hunt periods – one during September 1-15 and a second from September 16-30. This change was made to increase hunter opportunity as the harvest allocation increased. The description, season framework, and bag and possession limits can be found in Appendix A.

Southwest (McCall) Region

Breeding pairs of sandhill cranes occur in the Lake Cascade, North Fork Payette River, and Little Salmon River drainages. No management data are collected on these birds.

Magic Valley Region

In September 2016, 31 cranes were observed in the Silver Creek Valley and two cranes were observed on the Camas Prairie. No cranes were observed at Carey Lake.

Southeast Region

Population Surveys: Personnel for the USFWS and a private contractor collect aerial survey information to determine total sandhill crane abundance during September in selected areas of the Southeast Region (Table 4).

Harvest Characteristics: A mail-in survey with a follow-up telephone survey of non-respondents was used to estimate hunter participation and harvest of sandhill crane for each hunt (Tables 5 & 6). In 2016, 161 sandhill cranes were harvested in the Bear Lake hunt area and 10 cranes were harvested in the Swan Lake hunt area.

Management Implications: Concerns expressed by grain producers during the mid-1990s prompted the Department to collect baseline information that could be used to identify strategies to reduce crop depredation. Chesterfield Reservoir, Blackfoot Reservoir, Bear River Valley, and Grays Lake were identified as primary sites due to a history of depredation concerns. However, sandhill cranes stage and use grain fields throughout the region including Marsh Valley, Malad Valley, Swan Lake/Oxford Slough area, Bear Lake Valley, American Falls Reservoir, and Thomas Fork Valley.

Depredations in the Southeast Region are managed using a lure crop program, most of which have been focused in Caribou County. Department personnel responded to an additional two complaints of sandhill cranes outside of the lure crop focus area.

Upper Snake Region

Population Surveys: Personnel for the USFWS and a private contractor collect aerial survey information to determine total sandhill crane abundance during September in selected areas of the Upper Snake Region (Table 4).

Harvest Characteristics: A mail-in survey with a follow-up telephone survey of non-respondents was used to estimate hunter participation and harvest of sandhill crane for each hunt (Tables 5 & 6). In 2016, 26, 39, and 23 cranes were harvested from Teton, Fremont, and Jefferson counties, respectively.

Depredation: The region received no sandhill crane depredation complaints during this reporting period.

Trapping and Transplanting:
Sandhill crane colts were captured on the ground and fitted with a solar-recharging battery-powered GPS tracking device attached to the tarsus. These devices are a GPS-GSM wildlife tracking deviceby Cellular Tracking Technologies. A total of 3 crane colts were captured and marked. On August 5, 2016, one colt was captured and marked inTeton Basin (Teton County) and one at Harriman State Park in Island Park area (Fremont County). On August 9, 2016, one colt was captured and marked in Kilgore, ID (Clark County).

Management Implications: Fall pre-migration staging area sandhill crane composition surveys were conducted in the Upper Snake Region for the first time in 1995. These baseline data were used to help identify strategies to reduce depredation concerns on pre-migration staging areas in the Fremont and Teton County areas.

Salmon Region

Sandhill cranes occur as scattered breeding pairs in the Lemhi, Pahsimeroi, and Salmon River valleys from Salmon to Stanley. No management data are collected on these birds.

TRUMPETER SWAN

The trumpeter swan is included in the 1991-1995 Nongame Species Plan; the Department's goals and objectives are the same as those of the Pacific Flyway. The 1991-1995 WMP contains no goals for this species. Data for trumpeter swans are included in this report for the historical record.

Magic Valley Region

In 1994, 1995, and 1996, a pair of trumpeter swans successfully nested at White Arrow Ponds north of Bliss in Gooding County. Since then, the trumpeter swans have made no attempt to nest at that site or attempts were brief and unsuccessful.

Successful nesting by trumpeter swans was also documented in 1995 and 1996 at the Department's Highway 46 Pond in Camas County. In 2002, a pair of trumpeter swans successfully nested and reared three juveniles on a private pond approximately six miles southeast of the Department's Highway 46 Pond.

During August 2006, Department staff found a pair of adult trumpeter swans with three cygnets on Spring Creek Reservoir in Camas County. No nesting trumpeters were documented in the region during 2007; however, a pair of adults was observed at Thorn Creek Reservoir by Department personnel on August 23, 2007. Trumpeters with cygnets were observed on the Snake River and at White Arrow Ponds during a February 2009 survey. No evidence of nesting trumpeters has been documented in the region since 2009.

Southeast Region

The trumpeter swan is included in the 1991-1995 Nongame Species Plan; the Department's goals and objectives are the same as those of the Pacific Flyway. The 1991-1995 WMP contains no goals for this species. Data for trumpeter swans are included in this report for the historical record.

Upper Snake Region

The trumpeter swan is included in the 1991-1995 Nongame Species Plan; the Department's goals and objectives are the same as those of the Pacific Flyway. The 1991-1995 WMP contains no

goals for this species. Data for trumpeter swans are included in this report for the historical record.

In the Upper Snake Region, trumpeter swans have been a principal catalyst for thousands of acres of habitat protection and wetland restoration on private lands funded by such federal and state programs as the North American Wetland Conservation Act (NAWCA), the Land and Water Conservation Fund and Idaho's Landowner Incentive Program. Some of the most meaningful wetlands conservation/restoration work has occurred in Teton Basin, Idaho.

Motivated by the goals defined in the 2008 Pacific Flyway Management Plan, the strategic location of Teton Basin for Greater Yellowstone swan conservation, and increasing concern about possible extirpation of trumpeter swans in YellowstoneNational Park, *The Teton Basin Trumpeter Swan Breeding Habitat Suitability Assessment* was completed by IDFG, Teton Regional Land Trust and Intermountain Aquatics (IMA). This assessment formally evaluated the suitability of Teton Basin wetlands for supporting nesting trumpeter swans and identifies locations where landowners are willing to participate in future swan translocations. As a result, the Greater Yellowstone Trumpeter Swan Working Group and Pacific Flyway Council voted to add Teton Basin to the list of priority sites approved for translocations of captive-reared swans from the Wyoming Wetland Society facility in Jackson Hole, Wyoming.

Project partners initiated trumpeter swan translocations in Teton Basin in summer 2013 with the following project objective: Establish a minimum of two active nest sites in Teton Basin over a 10 year period. Project implementation was led by IDFG and TRLT and focuses on 1) maintaining location records of released birds, 2) maintaining optimal habitat management at breeding marshes and 3) maintaining viable partner-landowner relationships.

In 2016, the third trumpeter swan release in Teton Basin was conducted at Lazy K Marsh. Four yearlings were released into an enclosure on May 6, 2016. The enclosure fencing was removed on May 18, 2016, and the Trumpeters began utilizing the extent of the marsh. A wild adult trumpeter swan joined the four released yearlings on June 21, 2016, and spent the remainder of the summer with the yearlings. On September 6, 2016 all yearlings and the wild adult swan were not observed on the release site for the first time and were later observed exploring wetlands throughout Teton Basin, often returning to the release site.

TUNDRA SWAN

The Department's 1991-1995 WMP goals (Connelly and Wackenhut 1990)for the tundra swan are the same as those of the Pacific Flyway. However, during the reporting period, this species received little management emphasis in Idaho. Tundra swans are not currently hunted in Idaho, but benefit indirectly from other wildlife management programs.

Tundra swans migrate through the region in spring and fall, and some winter on the Snake River, the North Fork Snake River and the Teton River, but none are known to nest in the state.

AMERICAN COOT

The Department's 1991-1995 WMP goals for the American coot are to 1) maintain the Idaho population, 2) increase the harvest, and 3) provide maximum recreational opportunity (Connelly and Wackenhut 1990). However, during the reporting period, this species received little management emphasis. This is because the American coot is not a popular game bird in Idaho and because it benefits indirectly from other wildlife management programs.

WILSON'S SNIPE

The Department's 1991-1995 WMP goals for the Wilson's snipe are to 1) maintain Idaho's Wilson's snipe population and 2) maintain the harvest (Connelly and Wackenhut 1990). However, during the reporting period, this species received little management attention. This is because the Wilson's snipe is not a popular game bird in Idaho and because it benefits indirectly from other wildlife management programs.

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Table 1. Estimated waterfowl harvest numbers from USFWS waterfowl hunter survey for Idaho, 1988-Present.

Year	Duck stamps sold	Estimated adult hunters	Total ducks harvested[a]	Total geese harvested[a]
1988	16,597	14,271	112,900	26,600
1989	16,894	14,073	119,600	30,500
1990	17,036	13,443	96,700	36,800
1991	17,151	14,144	117,880	39,500
1992	17,717	14,132	126,700	31,700
1993	21,761	17,972	153,200	45,600
1994	21,229	17,418	141,300	61,100
1995	21,097	18,395	203,400	46,900
1996	22,382	19,751	245,800	61,100
1997	23,697	22,241	248,600	40,700
1998	23,515	21,006	254,700	56,700
1999	26,709	20,795	228,300	28,500
2000	28,206	23,306	173,200	86,200
2001	26,173	12,000/14,900[b]	138,600	64,400
2002	24,937	14,500 / 9,900[b]	160,600	36,700
2003	24,878	18,200/15,400[b]	262,900	84,200
2004	24,320	17,100/13,300[b]	188,500	62,700
2005	23,724	18,500/16,000[b]	258,300	74,300
2006	25,726	18,400/14,500[b]	278,000	77,800
2007	27,137	17,500/11,178[b]	229,100	40,900
2008	[c]	20,000/13,700[b]	257,600	64,500
2009	[c]	15,400/11,100[b]	286,600	58,300
2010	[c]	16,900/11,100[b]	156,600	31,400
2011	[c]	14,200/12,800[b]	209,500	51,000
2012	[c]	16,200/12,700[b]	277,700	73,900
2013	[c]	19,400/15,600	320,400	70,300
2014	[c]	18,959/15,165	241,828	73,437
2015	[c]	11,849/9,441	173,674	44,096

[a] Adjusted for exaggeration memory bias and juvenile hunter density.

[b] The first number is estimated number of duck hunters and the second number is estimated number of goose hunters.

[c] Data is no longer available.

Table 2. Ducks banded in Idaho by Department and USFWS personnel, 2016.

Species	Panhandle	Clearwater	Southwest	Magic Valley	Southeast	Upper Snake	Salmon	Total
American Widgeon	0	0	0	0	0	4	0	4
American Green-winged Teal	178		87		15			280
Blue-winged Teal	1	0	2	0	0	0	0	3
Canvasback	0	0	0	0	0	0	0	0
Cinnamon Teal	209	0	137	0	1	0	0	347
Gadwall	5	0	9	0	0	0	0	14
Mallard	942	0	413	0	26	266	0	1,647
Northern Pintail	8	0	0	0	0	5	0	13
Northern Shoveler	0	0	0	0	0	0	0	0
Redhead	9	0	3	0	0	0	0	12
Ring-necked	1	0	0	0	0	0	0	1
Wood Duck	302	0	6	0	0	0	0	308
Total	1,655	0	657	0	42	275	0	2,629

Table 3. Mallards banded in Idaho by Department personnel, 2008-Present.

IDFG Region	2008	2009	2010	2011	2012	2013	2014	2015	2016	Total
Panhandle	1,315	1,065	1,086	971	455	1,776	1,053	867	942	9,530
Clearwater	0	12	3	0	0	0	0	11	0	26
Southwest	0	40	63	0	0	0	0	150	413	666
Magic Valley	0	0	59	0	0	0	0	0	0	59
Southeast	0	0	0	0	0	0	0	45	26	71
Upper Snake	309	977	633	788	14	380	565	21	266	3,953
Total	1,624	2,022	1,844	1,759	469	2,156	1,618	1,094	1,647	14,305

Table 4. September aerial and ground-based counts of RMP greater sandhill cranes in eastern Idaho, 2010-2016.

Region/Area	2010	2011	2112	2013	2014	2015	2016
Magic Valley							
Camas Prairie	5	32	ND	21	ND	0	0
Carey Lake	0	0	0	0	ND	0	0
Silver Lake	309	399	281	421	431	575	31
Southeast							
American Falls Reservoir	68	52	103	288	155	71	198
Bear River Valley	1,211	908	559	410	778	1,272	1,301
Blackfoot Reservoir	429	298	434	333	520	537	600
Chesterfield Reservoir	103	135	40	103	49	196	43
Grays Lake	1,115	972	262	907	839	489	328
Malad River	ND	271	96	248	325	320	582
Marsh Valley	117	135	193	122	238	149	178
Oxford Slough	366	241	136	136	205	214	0
Upper Snake							
Ashton-St Anthony	444	400	950	662	654	840	705
Camas NWR	664	430	60	200	375	426	179
Henry's Lake Flats	112	144	72	59	2	1	0
Island Park Reservoir	5	5	65	0	4	0	0
Kilgore	ND	ND	ND	ND	ND	ND	ND
Market Lake WMA	3	2	6	5	6	25	4
Mud Lake WMA	137	13	103	248	53	54	73
Teton Basin	688	592	572	1,065	1,130	1,285	1,221
Total	5,776	5,029	3,932	5,228	5,764	6,454	5,443

Table 5 Sandhill crane tag levels, estimated hunter participation, and harvest based on mail and telephone surveys, 2010-2016.

Hunt Areas 1-6	2010	2011	2112	2013	2014	2015	2016
Bear Lake-Caribou County							
Tags available	400	400	295	180	160	195	300
Tags issued	335	355	279	180	160	195	305
Total hunters	152	201	131	87	83	109	
Days hunted	523	595	389	207	197	277	
% Success[a]	45	44	20	51	46	53	53
Harvest	150	141	139	93	74	104	161
Teton County							
Tags available	100	100	40	25	22	25	
Tags issued	50	52	49	25	21	25	
Total hunters	37	36	27	18	13	15	
Days hunted	114	86	44	38	23	23	
% Success[a]	66	59	59	7	62	56	
Harvest	33	30	29	2	13	14	
Fremont County							
Tags available	100	100	65	40	35	45	
Tags issued	98	91	98	40	35	45	
Total hunters	58	65	57	34	23	35	
Days hunted	167	143	124	53	61	98	
% Success[a]	48	69	55	58	71	64	
Harvest	47	61	54	23	25	29	
Bonneville County							
Tags available	40	40	10	5			
Tags issued	22	9	14	5			
Total hunters	15	9	3	4			
Days hunted	23	11	9	7			
% Success[a]	41	37	50	0			
Harvest	9	5	7	0			
Jefferson County							
Tags available	40	40	20	10	10	10	
Tags issued	26	36	40	11	10	26	
Total hunters	15	18	17	7	6	13	
Days hunted	46	55	59	9	1	34	
% Success[a]	54	69	73	73	80	58	
Harvest	14	26	29	8	8	9	
Bannock County							
Tags available			30	15	13	15	25
Tags issued			30	15	15	15	25
Total hunters			19	11	11	11	
Days hunted			46	38	33	15	
% Success[a]			60	60	93	70	40
Harvest			18	9	14	10	10

State Total						
Tags available	680	680	460	275	240	290
Tags issued	531	543	510	276	241	306
Total hunters	278	285	255	161	135	185
Days hunted	875	891	671	352	325	447
% Success[a]	48	53	60	49	56	54
Harvest	253	261	275	135	134	166

Table 6. Age composition of sandhill crane harvest based on mail and telephone surveys, 2009-2016.

Hunt Areas 1-6	2009	2010	2011	2012	2013	2014	2015	2016
Bear Lake-Caribou County								
Juvenile	24	19	26	21	8	4	15	20
Adult	126	131	115	118	85	70	89	141
Unknown								
Teton County								
Juvenile	4	6	3	5	0	1		5
Adult	31	27	27	24	2	12		21
Unknown								
Fremont County								
Juvenile	10	9	10	11	1	3		6
Adult	40	38	51	43	22	22		33
Unknown								
Bonneville County[a]								
Juvenile	3	1	0	4	0			
Adult	3	8	5	3	0			
Unknown								
Jefferson County								
Juvenile	3	2	6	4	1	0		1
Adult	9	12	19	25	7	8		22
Unknown								
Bannock County								
Juvenile				2	0	1	0	2
Adult				16	9	13	10	8
Unknown								

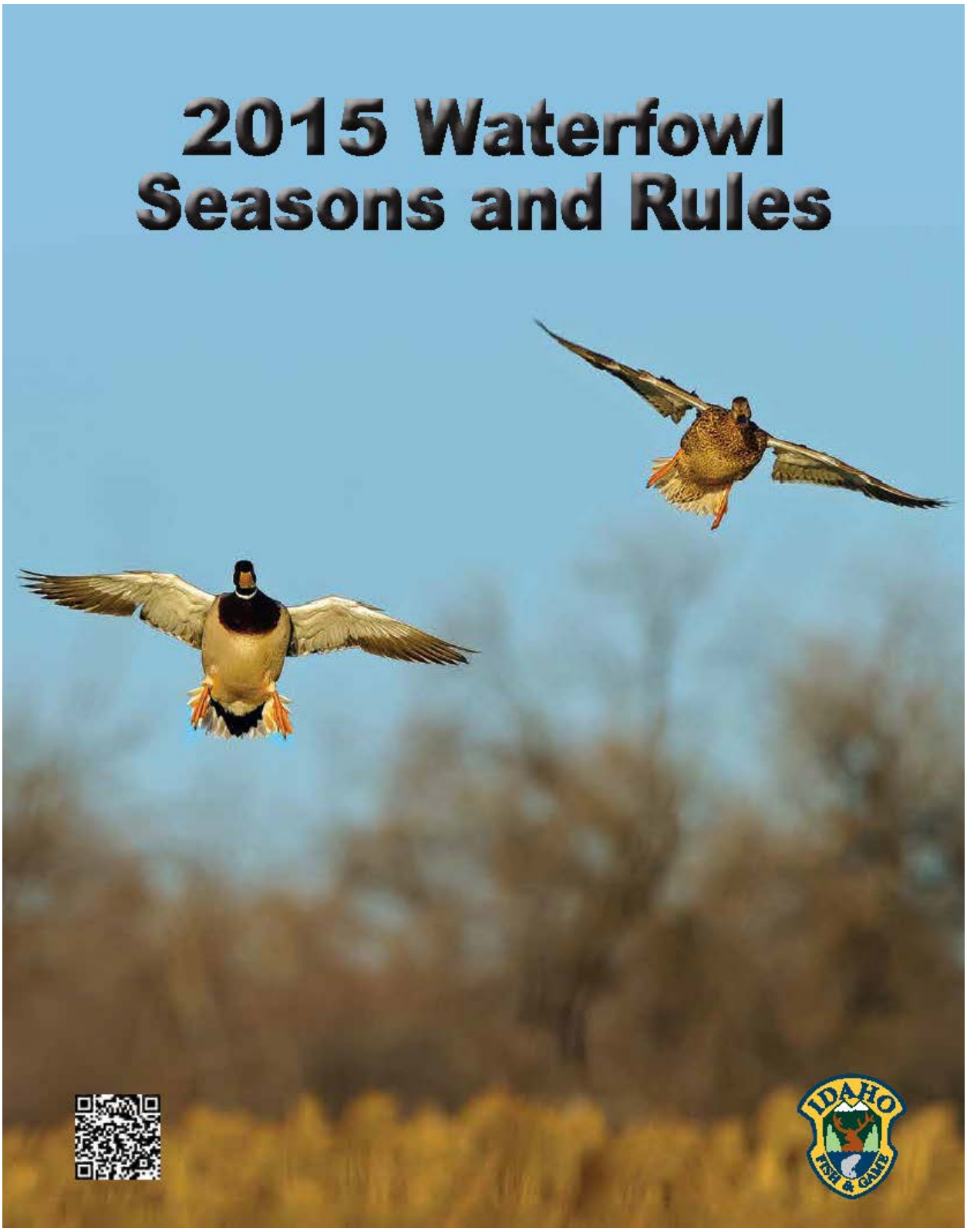
[a] Bonneville County hunt was discontinued in 2014.

APPENDIX A

IDAHO

2015-2016 SEASON

WATERFOWL RULES


2015 Waterfowl
Seasons and Rules
IDAHO
FISH & GAME

Idaho Fish & Game

WATERFOWL SEASONS AND RULES 2015

September 2015 through March 2016

Including: Wilson's snipe and American coot

KEY DATES:		
Canada Goose Season	Area 1	October 3, 2015 to January 15, 2016.
Canada Goose Season	Area 2	October 17, 2015 to January 29, 2016.
Canada Goose Season	Area 3	September 1, 2015 to September 15, 2015 October 17, 2015 to January 14, 2016.
White-fronted Goose Season	Area 1	October 3, 2015 to January 15, 2016.
White-fronted Goose Season	Area 2	October 17, 2015 to January 29, 2016.
White-fronted Goose Season	Area 3	November 9, 2015 to February 21, 2016.
Light Goose Season	Area 1	October 3, 2015 to January 15, 2016.
Light Goose Season	Area 2	October 17, 2015 to January 29, 2016.
Light Goose Season	Area 3	November 27, 2015 to March 10, 2016.
Light Goose Season	Area 4	October 30, 2015 to January 15, 2016 and February 13, 2016 to March 10, 2016.
Duck Season	Area 1	October 3, 2015 to January 15, 2016. **Scaup:** October 24, 2015 to January 15, 2016.
Duck Season	Area 2	October 17, 2015 to January 29, 2016. **Scaup:** November 7, 2015 to January 29, 2016.
Special Youth Hunt	Area 1	September 26 and 27, 2015.
Special Youth Hunt	Area 2	October 3 and 4, 2015.

Required:

- Migratory Bird (HIP) Permit.
- Federal Migratory Bird (Duck) Stamp for all hunters 16 or older.
- Nontoxic shot.

It is the responsibility of the hunter to become familiar with the rules that affect the hunt in which he or she is participating. This brochure provides seasons for waterfowl hunting, and it provides a summary of rules that govern waterfowl hunting in Idaho. For details about the rules, please refer to these links: Idaho Administrative Procedures Act, http://fishandgame.idaho.gov/content/idfg-rules; Idaho Code http://fishandgame.idaho.gov/content/title36.

License holder must validate stamp by signing across the front in ink.

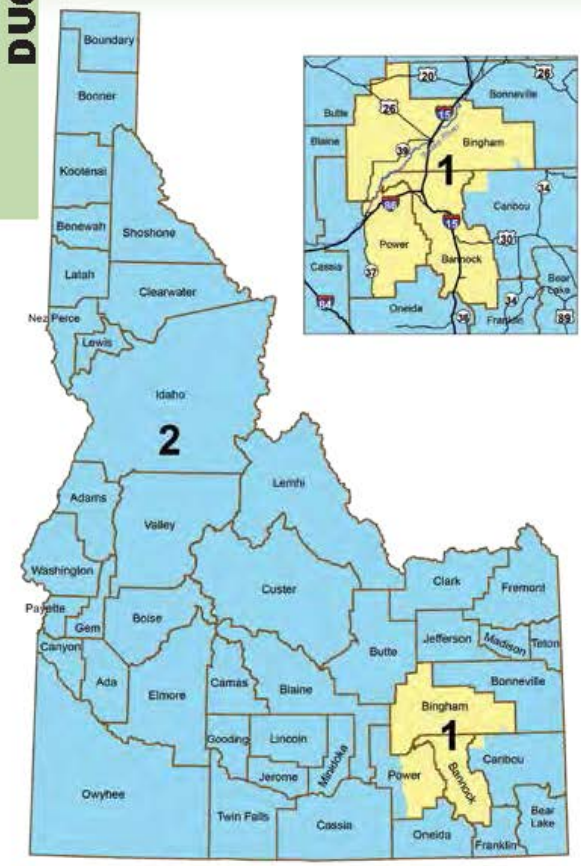
Remember!

If you are 16 or older, you need to purchase a Federal Migratory Bird (Duck) Stamp.

Available online @
http://fishandgame.idaho.gov/content/duckstamp

DUCK

Statewide Duck (Including Merganser), Wilson's Snipe and American Coot Seasons, Limits & Hunt Area Descriptions



AREA 1

- **October 3, 2015 - January 15, 2016**
- **Scaup Season:**
  October 24, 2015 - January 15, 2016

  Area 1 includes all lands and waters within the Fort Hall Indian Reservation, including private in-holdings; Bannock County; Bingham County, **except that portion within the Blackfoot Reservoir drainage**; Caribou County within the Fort Hall Indian Reservation; and Power County east of State Highway 37 and State Highway 39. (See yellow area on map).

AREA 2

- **October 17, 2015 - January 29, 2016**
- **Scaup Season:**
  November 7, 2015 - January 29, 2016

  Area 2 includes all parts of the state **not** included in Area 1. (See blue area on map).

Duck Bag Limit

(Including mergansers)

Daily Bag Limit: 7 of any kind except:
Shall not include more than the following:
2 female mallard
2 redhead
2 pintail
2 canvasback
3 scaup

Bag Limits For Wilson's Snipe and Coots

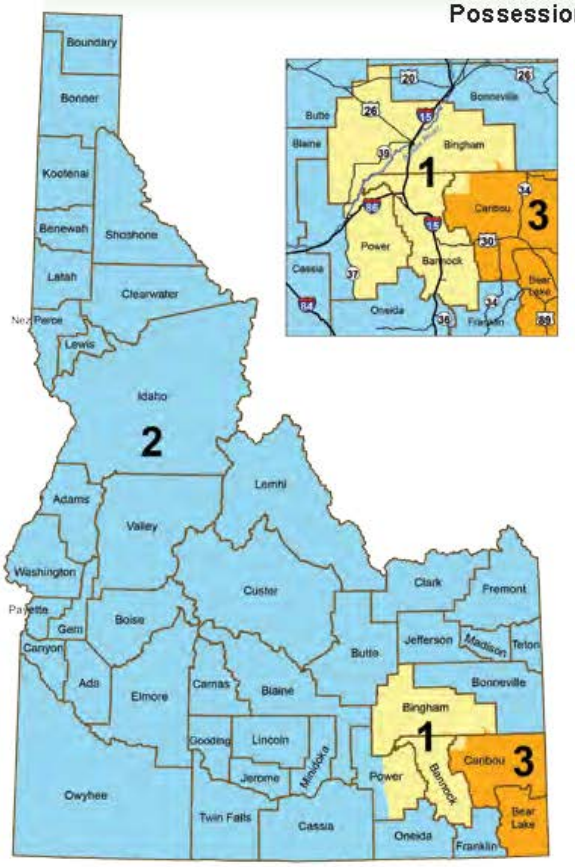
Wilson's Snipe
Daily Bag Limit: 8

Coots
Daily Bag Limit: 25

Possession Limit: 3 times daily bag limit

Canada Goose Seasons, Limits & Hunt Area Descriptions

Daily Bag Limit: 4
Possession Limit: 12



AREA 1

- **October 3, 2015 - January 15, 2016**

  Area 1 includes all lands and waters within the Fort Hall Indian Reservation, including private in-holdings; Bannock County; Bingham County, **except that portion within the Blackfoot Reservoir drainage**; Caribou County within the Fort Hall Indian Reservation; and Power County east of State Highway 37 and State Highway 39. (See yellow area on map).

AREA 2

- **October 17, 2015 - January 29, 2016**

  Area 2 includes all parts of the state **not** included in Areas 1 and 3. (See blue area on map).

- **Note:** The Hagerman Valley goose closure has been modified. See page 24.

AREA 3

- **September 1 - 15, 2015**
  (Daily bag limit is 5 during this time period only).

- **October 17, 2015 - January 14, 2016**

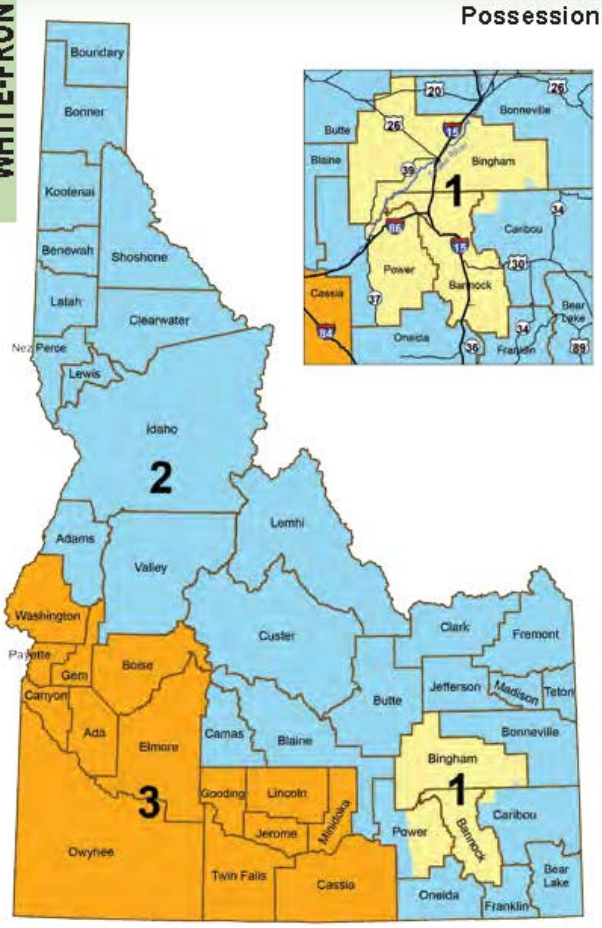
  Area 3 includes Bear Lake County, Bingham County within the Blackfoot Reservoir drainage, and Caribou County **except that portion within the Fort Hall Indian Reservation**. (See orange area on map).

Photo courtesy Brian Wagner

WHITE-FRONTED GOOSE

White-fronted Goose Seasons, Limits & Hunt Area Descriptions

Daily Bag Limit: 10
Possession Limit: 30



AREA 1

- **October 3, 2015 - January 15, 2016**

Area 1 includes all lands and waters within the Fort Hall Indian Reservation, including private in-holdings; Bannock County; Bingham County, **except that portion within the Blackfoot Reservoir drainage**; Caribou County within the Fort Hall Indian Reservation; and Power County east of State Highway 37 and State Highway 39. (See yellow area on map).

AREA 2

- **October 17, 2015 - January 29, 2016**

Area 2 includes all parts of the state **not** included in Areas 1 and 3. (See blue area on map).

AREA 3

- **November 9, 2015 - February 21, 2016**
- **Area 3** includes the following counties: Ada, Boise, Canyon, Cassia, Elmore, Gem, Gooding, Jerome, Lincoln, Minidoka, Owyhee, Payette, Twin Falls, and Washington counties. (See orange area on map).
- **Closures:** In the Southwest Region, Fort Boise and Payette River WMAs and that portion of the Roswell Marsh Wildlife Habitat Area south of State Highway 18, and the Snake River Islands Unit of the Deer Flat National Wildlife Refuge will be closed February 1 - March 10, 2016.

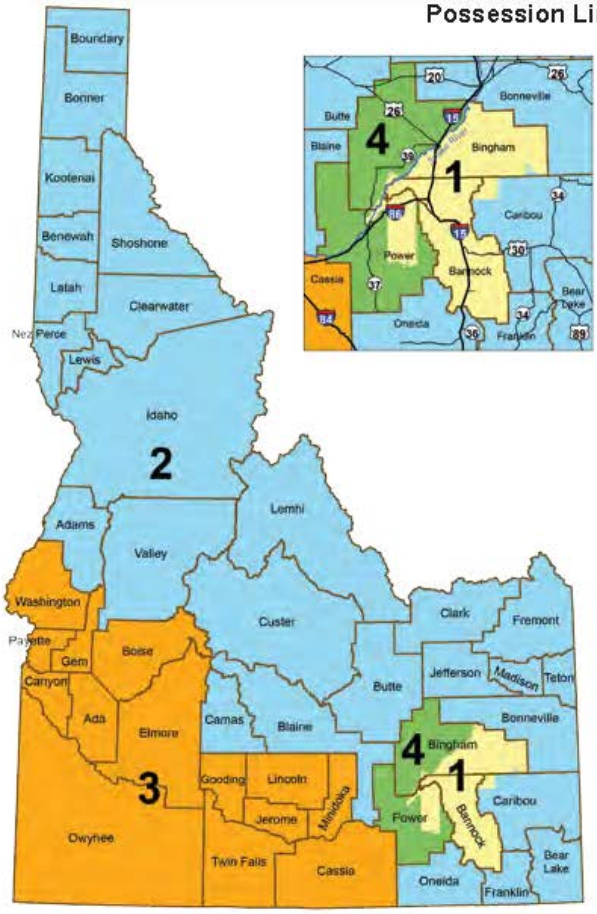
Photo courtesy Clair Kofoed

Light Goose Seasons, Limits & Hunt Area Descriptions

(Including: Blue, Ross's and Snow Geese)

Daily Bag Limit: 20

Possession Limit: 60



AREA 1

- **October 3, 2015 - January 15, 2016**

Area 1 includes all lands and waters within the Fort Hall Indian Reservation, including private in-holdings; Bannock County; Bingham County east of the west bank of the Snake River, west of the McTucker boat ramp access road, and east of the American Falls Reservoir bluff, **except that portion within the Blackfoot Reservoir drainage**; Caribou County within the Fort Hall Indian Reservation; and Power County below the American Falls Reservoir bluff, and within the Fort Hall Indian Reservation. (See yellow area on map).

AREA 2

- **October 17, 2015 - January 29, 2016**
- **Area 2** includes all parts of the state not included in Areas 1, 3, and 4.(See blue area on map).
- **Closures: Fremont and Teton counties**

AREA 3

- **November 27, 2015 - March 10, 2016**.
- **Area 3** includes the following counties: Ada, Boise, Canyon, Cassia, Elmore, Gem, Gooding, Jerome, Lincoln, Minidoka, Owyhee, Payette, Twin Falls, and Washington counties. (See orange area on map).
- **Closures:** In the Southwest Region, Fort Boise and Payette River WMAs and that portion of the Roswell Marsh Wildlife Habitat Area south of State Highway 18, and the Snake River Islands Unit of the Deer Flat National Wildlife Refuge will be closed February 1 - March 10, 2016.

AREA 4

- **October 30, 2015 - January 15, 2016 and February 13, 2016 - March 10, 2016.**

Area 4 includes Bingham County west of the west bank of the Snake River, east of the McTucker boat ramp access road, and west of the American Falls Reservoir bluff; Power County, except below the American Falls Reservoir bluff and those lands and waters within the Fort Hall Indian Reservation.(See green area on map).

LEGAL HUNTING METHODS FOR LIGHT GEESE :

When all other waterfowl and migratory game bird hunting seasons, except falconry, are closed, recorded or electrically amplified bird calls or imitations of bird calls, and unplugged shotguns capable of holding more than three shells may be used to hunt light geese. These hunting methods apply to the light goose seasons in Area 3 from February 22 to March 10, 2016, and in Area 4 from February 13 to March 10, 2016.

Sandhill Crane Seasons and Limits

Daily Bag Limit: 2 Season Limit: 2

Sandhill crane hunting occurs in eastern Idaho. One of the purposes of these hunts is to help reduce crop damage

- September 1-15 or September 16-30 depending on tag type.
- Sandhill Crane Tag—***REQUIRED***
- Migratory Bird (HIP) Permit—***REQUIRED WITH FIRST TAG ONLY***
- Federal Migratory Bird (Duck) Stamp—***NOT REQUIRED***
- Shotgun capable of carrying no more than 3 shells—***REQUIRED***
- Nontoxic Shot—***NOT REQUIRED***
- Shot Size: No person shall take sandhill crane while in possession of shot larger than two tenths (0.2 inches) in diameter (size T).

Tags will be available for purchase at 10 am MDT on August 1, first-come, first-served.

Tagging

Immediately after any sandhill crane is harvested, the tag must be validated and securely attached. The tag must remain attached so long as the sandhill crane is in transit or storage.

Species Identification

To legally transport any migratory game bird, one feathered wing or head must be left attached at all times while being transported until they reach their final destination.

Know Your Crane!

Please note the age of the crane you harvested. This data is important for crane harvest management.

An adult sandhill crane stands nearly four feet tall. Grayish plumage is accented by a featherless red head patch. Juveniles have tannish brown heads with no red.

Juvenile

Adult

AREA 1

- Includes all of Bear Lake County and all of Caribou County except that portion lying within the Grays Lake Basin.

AREA 2

- Includes all of Teton County except that portion lying west of state Highway 33 and south of Packsaddle Road (West 400 North) and north of the North Cedron Road (West 600 South) and east of the west bank of the Teton River.

AREA 3

- Includes all of Fremont County except the Chester Wetlands Wildlife Management Area.

AREA 4

- Includes all of Jefferson County except that portion beginning at the 1400 E/1750 N intersection, then west following the Mud Lake WMA boundary to the 1100 E/WMA Sparks Canal Road, then north and east following the Sparks Canal Road to the WMA North Bluff Road intersection, then east following the North Bluff Road to the WMA Lower Lake Road, then drawing a straight line south to the beginning point of 1750 N/1400 E intersection.

AREA 5

- Includes Bannock County east of Interstate-15 and south of U.S. Highway 30; and all of Franklin County.

Sandhill Crane Seasons, Limits and Tags

Hunt Area	Season	Tags
1-Bear Lake	September 1-15	200
	September 16-30	100
2-Teton	September 1-15	30
3-Fremont	September 1-15	35
	September 16-30	35
4-Jefferson	September 1-15	20
	September 16-30	20
5-Swan Lake	September 1-15	25

Note: Daily limit is 2 for all hunts. The season limit is 2.

License, Tag and Validation Requirements:

To hunt sandhill cranes, hunters must have in possession the appropriate hunting license, sandhill crane tag and Federal Migratory Game Bird Harvest Information Program (HIP) validation. All are available at any license vendor, Fish and Game office, by telephone (1-800-554-8685), or Fish and Game website: **fishandgame.idaho.gov.**

Tags will be available for purchase at 10 am MDT on August 1, first-come, first-served.

Fees - includes vendor fee:

Sandhill Crane Tag.....**$15.00**

Federal HIP Validation.....**$1.75**

HIP validation is required with the first tag only.

Daily/Season Limits

Daily Limit—for all hunts 2

Season limit.....2

Shot and Weapon Restrictions:

- Shot Sizes: Sandhill cranes may legally be taken with shot size T (0.2 inches in diameter) or smaller (lead or non-toxic).
- No person may take migratory game birds with any shotgun capable of holding more than three (3) shells unless it is plugged with a one-piece filler that is incapable of removal without disassembling the gun.

Sandhill Crane Seasons, Limits and Tags

Hunt Area	Season	Tags
1	September 1-15	195
2	September 1-15	25
3	September 1-15	45
4	September 1-15	10
5	September 1-15	15

Note: Daily limit is 2 for all hunts. The season limit is 2.

Tagging:

Immediately after any sandhill crane is harvested, the tag must be validated and securely attached. The tag must remain attached so long as the sandhill crane is in transit or storage.

Species Identification:

To legally transport any migratory game bird, one feathered wing or head must be left attached at all times while being transported until they reach their final destination.

Shooting Hours:

Shooting hours are from one-half hour before sunrise to sunset. For exact time, check the current upland game brochure on Page 23. ***For general sandhill crane season rules, see pages 20-23 of the current Upland Game Rules Brochure*** or online at: **fishandgame.idaho.gov.**

Sandhill Crane Hunt Areas include the following:

Area 1 — Includes all of Bear Lake County and all of Caribou County **except that portion lying within the Grays Lake Basin.**

Area 2 — Includes all of Teton County **except that portion lying west of state Highway 33 and south of Packsaddle Road (West 400 North) and north of the North Cedron Road (West 600 South) and east of the west bank of the Teton River.**

Area 3 — Includes all of Fremont County **except the Chester Wetlands Wildlife Management Area.**

Area 4 — Includes all of Jefferson County.

Area 5 — Includes Bannock County east of Interstate-15 and south of U.S. Highway 30; and all of Franklin County.

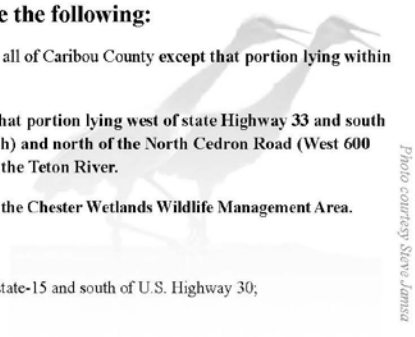


Photo courtesy Steve Jamsa

Submitted by:

Wayne Wakkinen Regional Wildlife Manager	Clay Hickey Regional Wildlife Manager	Rick Ward Regional Wildlife Manager
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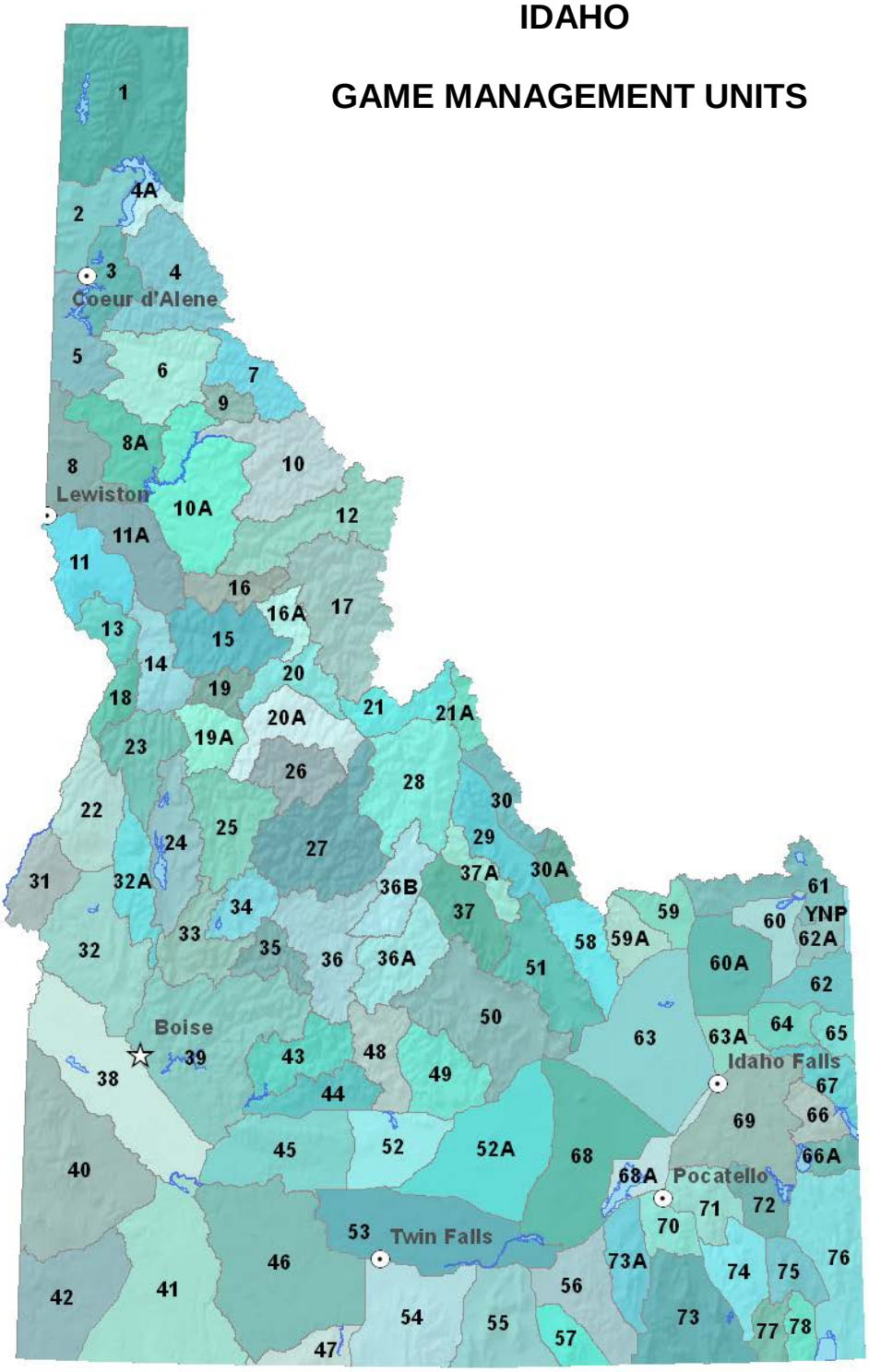
Curtis Hendricks Regional Wildlife Manager	Greg Painter Regional Wildlife Manager	

Approved by: IDAHO DEPARTMENT OF FISH AND GAME

Toby Boudreau, Asst. Chief Bureau of Wildlife	Scott Reinecker, Chief Bureau of Wildlife

IDAHO

GAME MANAGEMENT UNITS



FEDERAL AID IN WILDLIFE RESTORATION

The Federal Aid in Wildlife Restoration Program consists of funds from a 10% to 11% manufacturer's excise tax collected from the sale of handguns, sporting rifles, shotguns, ammunition, and archery equipment. The Federal Aid program then allots the funds back to states through a formula based on each state's geographic area and the number of paid hunting license holders in the state. The Idaho Department of Fish and Game uses the funds to help restore, conserve, manage, and enhance wild birds and mammals for the public benefit. These funds are also used to educate hunters to develop the skills, knowledge, and attitudes necessary to be responsible, ethical hunters. Seventy-five percent of the funds for this project are from Federal Aid. The other 25% comes from license-generated funds.