

Project(s) Proposal

Date Generated: March 8, 2014

Idaho Department of Fish and Game

Wildlife Restoration Grants

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Project Statement Details

Project Snapshot #60008473 - BMP Research: ID-Columbian Sharp-tailed Grouse Research

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Primary Agency	Idaho Department of Fish and Game
Start Date	October 1, 2010
End Date	September 30, 2013
Project Categories	Conservation/Management

Project Statement Details #60008478 - Columbian Sharp-tailed Grouse Research

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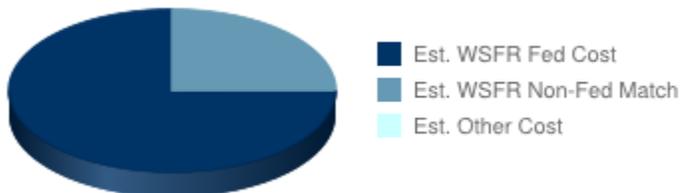
Properties

Is Revision?	No
Grant Programs	Wildlife Restoration Grants

Project Statement
Cost Breakdown

Estimated WSFR Federal Cost:	\$114,401
Estimated WSFR Non-Federal Match:	\$38,134
Estimated Other Cost:	\$0
Total Estimated Cost:	\$152,535

Cost Breakdown Graph



Need Statement

The Idaho Department of Fish and Game (IDFG) needs a reliable technique for monitoring the status and trend of Columbian sharp-tailed grouse populations. Additionally, the Department needs a better understanding of the vital rates of Columbian sharp-tailed grouse in various habitat types including Conservation Reserve Program lands, native shrub-steppe, and altered shrub-steppe communities. This information is necessary for conservation and management decisions, including hunting seasons habitat improvement efforts, and technical assistance to public and private landowners.

The IDFG and the Idaho Fish and Game Commission are mandated by State Law to preserve, protect, perpetuate, and manage all wildlife in Idaho. The state's big game mammals, upland game birds and other species are of great social and economic value, and the state holds a public trust responsibility to manage these species in a manner that will preserve, protect, and perpetuate them as natural resources owned jointly by the citizens of Idaho into perpetuity. Fulfilling Idaho's public trust responsibility to Idaho citizens requires knowledge about each species and its relationship to its environment. To obtain this critical information, Idaho maintains a staff of highly trained professional wildlife research biologists, assisted on occasion by graduate students, to obtain needed information. This project will help IDFG and the Fish and Game Commission acquire the necessary biological information needed to carry out their mission.

Federal grant funds under the Wildlife Restoration Act (i.e. Pittman-Roberston Act) are available to states for funding wildlife restoration projects, which includes, "...research into the problems of wildlife management as may be necessary to efficient administration affecting wildlife resources..." Therefore, this project's need is consistent with the funding source of the Wildlife Restoration Act.

Approach

Study sites will be established in southeastern Idaho within Idaho Department of Fish and Game's Magic Valley, Southeast and Upper Snake regions. Specific counties include Bannock, Bingham, Bonneville, Caribou, Jefferson, Madison, Power, and Oneida (Figure 1).

Borrowing from both the sage-grouse and sharp-tailed grouse literature and a survey of methods used to monitor sharp-tail grouse by other agencies the Columbian sharp-tailed grouse (CSTG) lek count protocol (ground-based visual observations accessed by vehicle driven on established roads) proposed by Ulliman et al. 1998 will be refined. The refined protocol will be applied throughout Idaho and exported to other agencies for consideration and consistency across CSTG range. Along with good standardization of data collection methods, most management agencies have not taken advantage of statistical sampling theory to improve the accuracy, precision, and defensibility of population survey data. Thus, a statistically defensible monitoring strategy using stratified random, cluster, or other common probability sampling design will be developed to allocate survey effort to maximize efficiency by balancing cost, accuracy, and precision to meet management determined constraints (Garton et al. 2007).

Sharp-tailed grouse will be trapped on leks with walk-in traps. Traps will be set approximately 1 hour before sunrise and remain open, under constant surveillance, until mid morning. All captured birds will be banded and 30-40 grouse per year per area (10-15 males, 20-30 females) will be equipped with radio-transmitters. Radio-marked grouse will be monitored 2-4 times per week from the ground during the breeding season and locations will be recorded with the aid of a GPS unit. Nest and use sites of radio-marked sharp-tailed grouse will be characterized using standard procedures for assessing grass and shrub vegetation (e.g., Connelly et al. 2003). Herbaceous cover will be assessed using Daubenmire frames and Robel poles while shrub overstory will be measured using line intercept. Radio-marked grouse will be monitored 2-3 times per week during the summer and fall and locations will be recorded with the aid of a GPS unit. Periodic aerial relocations may be obtained by using fixed-wing aircraft flying at an altitude of 500+ feet AGL.

Winter locations will be obtained 3-5 times per month for each radio-marked bird to allow estimates

of both seasonal and annual home ranges. Distribution, home range, and vital rates will be analyzed and compared for populations of CSTG in areas affected by habitat change and populations occupying relatively intact habitats.

Maximum-likelihood estimation of demographic parameters, including recruitment, annual survival, harvest rate, and abundance, can be calculated based on a joint-likelihood model of age-at-harvest and incorporation of independent elements including lek survey data, catch-effort data, and radio-telemetry data among others (Skalski et al 2005, Skalski et al. 2007, Broms et al. 2010). Wings collected from birds harvested during the regulated hunting season will be used to provide the age-at-harvest data. Some refinements in collection methods may be necessary to ensure representative samples. Small game populations present an additional challenge because of the limited number of age classes that can be distinguished from the hunter bag. Joint-likelihood population reconstruction models will be developed following the methods of the above authors and especially Broms et al. (2010) who adapted this methodology for sage-grouse and a simple two-age class population structure.

Expected Results

The results of this work will greatly enhance wildlife managers' ability to monitor Columbian sharp-tailed grouse populations and assess trends throughout their range. It will also guide management efforts including the establishment of sustainable harvest opportunity and habitat conservation actions. A research paper, published in a professional journal, addressing the objectives of the project is expected upon completion of the project. The results of this work will greatly enhance wildlife managers' ability to monitor Columbian sharp-tailed grouse populations and assess trends throughout their range. It will also guide management efforts including the establishment of sustainable harvest opportunity and habitat conservation actions. A research paper, published in a professional journal, addressing the objectives of the project is expected upon completion of the project.

General

LITERATURE CITED

- Broms, K., J.R. Skalski, J.J. Milspaugh, C.A. Hagen, and J.H. Schultz. 2010. Using statistical population reconstruction to estimate demographic trends in small game populations. *Journal of Wildlife Management* 74:310-317.
- Connelly, J.W., K.P. Reese, and M.A. Schroeder 2003. Monitoring of greater sage-grouse habitats and populations. University of Idaho college of natural resources experiment station bulletin 80. Moscow, ID.
- Garton, E.O., D.D. Musil, K.P. Reese, J.W. Connelly, and C.L. Anderson. 2007. Sentinel lek-routes: an integrated sampling approach to estimate greater sage-grouse population characteristics. In Reese, K.P., and R.T. Bowyer. 2007. Monitoring populations of sage-grouse. University of Idaho college of natural resources experiment station bulletin 88. Moscow, ID.
- Skalski, J.R., K.E. Ryding, and J.J. Millspaugh. 2005. *Wildlife Demography: Analysis of sex, age, and count data*. Elsevier Academic Press Burlington, MA.

Skalski, J.R., R.L. Townsend, and B. Gilbert. 2007. Calibrating statistical population reconstruction models using catch-effort and index data. *Journal of Wildlife Management* 71:1309-1316.

Ulliman, M.J., A. Sands, and T. Hemker. 1998. Idaho Columbian sharp-tailed grouse conservation plan - draft. Unpubl. Rpt. Idaho Department of Fish and Game, Boise. 31pp.

MINIMIZATION MEASURES FOR FEDERALLY-LISTED SPECIES

Federally listed and candidate species whose geographic range are within the project area include gray wolf (*Canis lupus*, LT- experimental, non-essential), grizzly bear (*Ursus arctos*, LT), lynx (*Lynx canadensis*, LT), sage grouse (*Centrocercus urophasianus*, C), yellow-billed cuckoo (*Coccyzus americanus*, C), Utah valvata snail (*Valvata utahensis*, LE), and Ute Ladies'-tresses (*Spiranthes diluvialis*, LT). Project work will occur within the habitats occupied by Columbian sharp-tailed grouse including sagebrush-steppe and Conservation Reserve Program lands. Because sharp-tailed grouse do not inhabit aquatic systems, no impacts to Utah valvata snail are expected to occur. Similarly; grizzly bear, lynx, and yellow-billed cuckoo are generally associated with wooded habitats not used by sharp-tailed grouse and no impacts are expected. However, if grizzly bear, lynx, or yellow-billed cuckoo are detected during project activities, staff will document the observation and cease any activities that could disturb the animal. Sage grouse can be found concurrent with sharp-tailed grouse, but because trapping (passive walk-in) will be limited to sharp-tailed grouse leks there will be very limited risk of incidental take. Additionally, high-altitude aerial telemetry monitoring is not expected to adversely affect sage grouse. Because soil disturbance is not a planned activity for the project, no impacts to listed plant species are likely to occur.

Useful Life

Not applicable, no capital improvements are proposed under this project.

Program Income

Not applicable, no program incomes is expected to be generated in this project.

Multipurpose Projects

Not applicable, this project will not have multiple purposes under different funding sources.

Relationship with Other Grants

Not applicable, no other grant funding is proposed to support this project.

Timeline

- April - May 2011 and 2012: Conduct lek searches and counts
- March - May 2011 and 2012: Behavioral observations of sharp-tailed grouse attending leks
- March - May 2011 and 2012: Capture and radio-collar sharp-tailed grouse
- May - June 2011 and 2012: Monitor nest site selection, nest site habitat, nest success of radio-collared sharp-tailed grouse habitat use, survival, distribution, movements, vital rates of radio-collared sharp-tailed grouse
- Weekly throughout the project: Monitor habitat use, survival, distribution, movements, vital rates of

radio-collared sharp-tailed grouse

-October - November 2011 and 2012: Monitor band returns and sport harvest mortality

-August 2012 - May 2013: Data analysis, thesis writing

SMART Objectives - Purpose/Targets

Purpose/Target ID - Improve Monitoring & Assess Land Use

Purpose/Target Description	Improve population monitoring and assessment techniques for Columbian sharp-tailed grouse (CSTG) and assess the impacts of land use changes (e.g., loss of Conservation Reserve Program lands, development of wind power) on sharp-tailed grouse vital rates and distribution over a three year period.
Viability Status	Sustain
Viability Status Justification	This project purpose is to evaluate population assessment techniques and land use changes. Directly, this project is not expected to increase or decrease the population. However, indirectly, improved assessment and monitoring techniques may lead to improved conservation efforts and subsequently increased populations.

Directly Benefited Species

Scientific Name	Common Name	Status
Tympanuchus phasianellus	Sharp-tailed Grouse	

Objectives

Objective ID - Survey and Data Collection

Objective Name	Survey and Data Collection
Objective Statement	To improve monitoring and assessment techniques for Columbian sharp-tailed grouse (CSTG) surveys for CSTG will be conducted with a refined technique to evaluate the effectiveness of the new methods. Surveys will be conducted annually for three years.

Custom Quantitative Indicators

Desired Future Value	Base Value	Output	Deadline
3	0	Years of Surveys and Data Collection	September 30, 2013

Objective ID - Analysis and Thesis

Objective Name	Analysis and Thesis
Objective Statement	Analyze the data collected and develop and submit an approved thesis addressing the overall purpose of improving population monitoring and assessment techniques for Columbian sharp-tailed grouse (CSTG) and assess the impacts of land use changes (e.g., loss of Conservation Reserve Program lands, development of wind power) on sharp-tailed grouse vital rates and distribution.

Standard Indicators

Desired Future Value	Base Value	Output	Deadline
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Appendix A: Project Details

Project Details #60008473 - BMP Research: ID-Columbian Sharp-tailed Grouse Research

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Properties

Status	Active
Primary Agency	Idaho Department of Fish and Game
Primary Contact	Brad Compton
Start Date	October 1, 2010
End Date	September 30, 2013
Is Project Sensitive?	No
Project Categories	Conservation/Management
Action Categories	Data Collection and Analysis

Project Description

The Columbian sharp-tailed grouse (*Tympanuchus phasianellus columbianus*; hereafter CSTG) was once widespread and perhaps the most abundant gallinaceous bird of the Intermountain West (Bendire 1892). Beginning in the early 1900's distribution and abundance of CSTG declined substantially. In 1980, CSTG existed as isolated populations inhabiting 10–50% of historic range (Miller and Graul 1980) and were extirpated from Oregon, California, and Nevada. Schroeder et al. (2000) estimated a 92% decline in CSTG populations in the state of Washington since 1954. Although populations of CSTG remain imperiled in most states (Natural Heritage Program, accessed August 2010), in the last 25 years, CSTG have expanded their range and increased in abundance in parts of Idaho, Utah, and British Columbia (Leupin 2003, Rodgers and Hoffman 2005). Populations in Idaho may represent 75% of the rangewide CSTG breeding population (Ulliman et al. 1998) and have been a source population for various translocation programs.

The Idaho Department of Fish and Game (Department) needs a reliable technique for monitoring status

and trend of Columbian sharp-tailed grouse populations. Additionally, the Department needs a better understanding of the vital rates of Columbian sharp-tailed grouse in various habitat types including Conservation Reserve Program lands, native shrub-steppe, and altered shrub- steppe communities. This information is necessary for conservation and management decisions, including hunting seasons, habitat improvement efforts, and technical assistance to public and private landowners.

The Idaho Department of Fish and Game and the Idaho Fish and Game Commission are mandated by State Law to preserve, protect, perpetuate, and manage all wildlife in Idaho. The state’s big game mammals, upland game birds and other species are of great social and economic value, and the state holds a public trust responsibility to manage these species in a manner that will preserve, protect, and perpetuate them as natural resources owned jointly by the citizens of Idaho into perpetuity.

Fulfilling Idaho’s public trust responsibility to Idaho citizens requires knowledge about each species and its relationship to its environment. To obtain this critical information, Idaho maintains a staff of highly trained professional wildlife research biologists, assisted on occasion by graduate students, to obtain needed information. This project will help the Department and the Fish and Game Commission acquire the necessary biological information needed to carry out their mission.

The objectives of this 3-year research project are to:

- 1) Improve population monitoring and assessment techniques for Columbian sharp-tailed grouse (CSTG) and
- 2) Assess the impacts of land use changes (e.g., loss of Conservation Reserve Program lands, development of wind power) on sharp-tailed grouse vital rates and distribution over a three year period

The benefits and results of this study will greatly enhance wildlife managers’ ability to monitor Columbian sharp-tailed grouse populations and assess trends throughout their range. It will also guide management efforts including the establishment of sustainable harvest opportunity and habitat conservation actions.

Location Details

Is Statewide Project? No
 Acres 7,162,669.06

States	Congressional Districts	Counties
Idaho	Congressional District 2,	Bannock County , Bear Lake County , Bingham County , Blaine County , Bonneville County , Butte County , Caribou County , Cassia County , Clark County , Franklin County , Fremont County , Jefferson County ,

		Madison County , Oneida County , Power County , Teton County ,
Wyoming	Congressional District (at Large),	Lincoln County , Teton County ,
Utah	Congressional District 1,	Box Elder County , Cache County ,

Project Statement Summaries

Project Statement #60008478 - Columbian Sharp-tailed Grouse Research

[\[View Statement Details\]](#)

Grant Programs

Wildlife Restoration Grants

Action Summaries

Action # 60009970 - 2012/2013 Annual Performance Report

[\[View Action Details\]](#)

Start Date

October 1, 2012

End Date

September 30, 2013

Action Category

Data Collection and Analysis

Action Strategy

Research, survey or monitoring - fish and wildlife populations

Action # 60008539 - 2010/2011 Annual Performance Report

[\[View Action Details\]](#)

Start Date

September 30, 2011

End Date

September 29, 2012

Action Category

Data Collection and Analysis

Action Strategy

Research, survey or monitoring - fish and wildlife populations

Action # 60009905 - 2011/2012 Annual Performance Report

[\[View Action Details\]](#)

Start Date

October 1, 2011

End Date

September 30, 2012

Action Category

Data Collection and Analysis

Action Strategy

Research, survey or monitoring - fish and wildlife populations