U.S. Fish and Wildlife Service
Financial Assistance Business Process
Notice of Funding Opportunity Template

Point of Contact
Send any questions about this document by email to the Chief, Branch of Financial Assistance Policy and Oversight (FAPO), Wildlife and Sport Fish Restoration Program (WSFR), Division of Administration and Information Management (AIM). See the FAPO About/Contact Us Intranet page at https://inside.fws.gov/index.cfm/go/post/FAPO-About for contact information.

Document Change Log
FAPO will update this template over time to incorporate changes resulting from any new government-wide regulations, Department of the Interior or Service policy, or new/changed Financial and Business Management System (FBMS) functionality. We will post revised versions of this document on the Intranet at https://inside.fws.gov/go/post/FAPO-NewAwards and will log updates made to this document in the following table:

Date Changed	Description of Change Made
2-20-2015	Incorporated requirements under new 2 CFR 200, including: • Changed Notice of Funding Availability to Notice of Funding Opportunity (see 200.203); • Updated reference to applicable Federal cost principles; • Removed references to A-133 and replaced with 2 CFR 200-Subpart F. Changed single audit threshold from $500K to $750K (see 200.501); and • Inserted mandatory disclosure requirements as a new reporting requirement (see 200.113).
2-20-2015	Incorporated requirements under recently issued Department policies, including: • DIG 2011-03, Amendment 1, "Financial Assistance Monitoring Protocol" (see also "Service Recipient Risk Assessment Guidance"); • DOI-AAAP-0008, "Conflict of Interest and Mandatory Disclosures for Financial Assistance"; and • DOI-AAAP-0009, "Financial Assistance Application and Merit Review Process".
2-20-2015	Other revisions made: • Section III, inserted new template text related to projects conducted outside the U.S.; • Section III.C., incorporated new requirement to extend active SAM Exclusions search to key project person(s); • Section III.D., inserted clarifying text related to applicant/recipient use of indirect cost as cost-share/matching; • Section IV.C., yellow highlighted items 4 and 5; • Section IV.E., inserted previously omitted text requiring a Federally-

Date Changed	Description of Change Made
	funded equipment list and replaced previous indirect cost rate statements table with simplified statements to be submitted by applicants; and • Added note above Section IX to instruct programs to remove the section for single source awards.

Instructions

Use the Notice of Funding Opportunity Template as a starting point for developing the full text of a program- or award-specific Notice of Funding Opportunity (NOFO). Programs that already have a NOFO in place must compare that document to this template at least annually to make sure it contains all required elements and content. For more information, see the **Issuing a New Financial Assistance Award Guidance** document posted on the Intranet at https://inside.fws.gov/go/post/FAPO-NewAwards.

The NOFO Template begins on page 3 of this document. Do not include this Instructions cover page on your customized NOFO. The table below provides editing instructions for generating the full text of a NOFO:

Text Characteristic	Represents
Times New Roman text with gray highlighting	Instructions for completing required elements that must be replaced with program-specific text
Times New Roman text with yellow highlighting	Sample content that programs may use, revise, or remove, as appropriate
Arial text with blue highlighting	Notes and additional instructions that must be removed
Times New Roman text, not highlighted	Required text that must not be removed

U.S. Fish and Wildlife Service
R6 Science Applications

Cooperative Landscape Conservation and Adaptive Science
Catalog of Federal Domestic Assistance (CFDA) Number: 15.669 and 15.670

Notice of Funding Opportunity

I. Description of Funding Opportunity

This is a Notice of Intent to award a Single Source Cooperative Agreement to Dr. Brad Fedy (*Assistant Professor at the University of Waterloo*) for the purpose of researching landscape factors that influence functional connectivity for greater sage-grouse.

The tasks to be performed under this agreement are as follows: 1) Establish biologically meaningful groupings for landscape-genetic analyses; 2) Develop and compare a set of ecologically relevant resistance surfaces; 3) Estimate current flow between know lek locations.

Program authorizing statute citation(s): Fish and Wildlife Conservation Act (16 U.S.C. 2901-2911; 94 Stat. 1322); Endangered Species Act of 1973 (16 U.S.C. 1531-1544, 87 Stat. 884); The National Wildlife Refuge System Improvement Act of 1997 (P.L. 105-57).; The Fish and Wildlife Act of 1956 (16 U.S.C. 742a-742j, not including 742 d-1; Stat. 1119), as amended; Migratory Bird Treaty Act of 1918.

II. Award Information

Estimated Total Program Funding: $89,300

Award one cooperative agreement, in which the Service will be substantially involved by actively engaging in the overall design, analyses, and writing of the research project. Participation will be substantial enough that the service will be a co-author on all resulting work. Further, landscape genetics work will directly build off of landscape level spatially explicit models for Greater Sage-grouse developed by Dr. Doherty of the Service.
Floor: $89,300
Ceiling: $89,300

III. Basic Eligibility Requirements

Eligible Applicants:
N/A

This Single Source Award is being awarded in accordance with Department of the Interior Policy 505 DM 2.14 B (4) Unique Qualifications - The applicant is uniquely qualified to perform the activity based upon a variety of demonstrable factors such as location, property ownership, voluntary support capacity, cost-sharing ability, if applicable, technical expertise, or other such unique qualifications, which allows for award without competition to an applicant. This recipient and project meet this criterion due to the fact that:

University of Waterloo is a member of the Rocky Mountain Cooperative Ecosystems Study Unit (CESU). Solicitation and selections of CESUs has previously occurred under a broad announcement and competition. Each of the 17 CESUs in the network was formed by a prescribed round of competitive solicitations to universities, state organizations, tribes and nongovernment organizations. Between fiscal years 1999 and 2003, the CESU Network Council conducted five rounds of formal completion to establish the seventeen CESUs. All Research I universities were eligible to compete as a host university. Each CESU followed a formal process, developed by the CESU Network Council, and approved by the Department of the Interior Office of the Solicitor.

The competitive process was developed by the CESU council of interagency representatives and was approved by the Department of Interior Solicitor's Office (a letter is on file at the National CESU office). For each CESU, a formal Program Announcement and Request for Proposals was widely distributed in the states within a CESU biogeographical area. The RFP was published for 10 days in Commerce Business Daily as well as being posted on the CESU website. Proposal received by the assigned due date were technically evaluated according to criteria described in the RFP. Site visits to the applicants were organized and conducted. The CESU council of interagency representatives selected, by vote, the host and partners within each CESU. The competitive process is described further here: http://www.cesu.psu.edu/materials/fs-selecting.pdf

Dr. Fedy also has unique qualifications to complete this project. First, Dr. Fedy & Dr. Row (Dr. Fedy's post doc), pioneered the first landscape level assessment of gene flow for sage-grouse that coupled genetic data with spatially explicit models of sage-grouse habitats (Row et al. 2015). While we anticipate additional challenges as we scale their analyses techniques up to the 11 state Greater Sage-grouse distribution (see project map), their recent methodological breakthroughs will speed up completion by years. Secondly, Dr. Fedy is part of an on-going, large-scale initiative to collect and genotype feather samples of sage-grouse across their range with a small cooperative group of genetic researchers who pooled substantial funding and share Greater Sage-grouse genetic data (> $1,000,000 in total contributed from the NRCS, BLM, USGS, and the University of Waterloo). The researchers in this group are all working on their specific expertise. This group of genetic researchers pooled their funds because of cost prohibitive nature of genetic sampling. Dr. Fedy & Dr. Rows expertise are firmly grouped in landscape genetics a linking genetic data to GIS data. Because of their expertise and participation in this group Dr. Fedy has access to genetic samples that will be required to complete analyses of genetic gene flow, which would cost well over a $1,000,000 to collect and analyze individually.

Federal law mandates that all entities applying for Federal financial assistance must have a valid Dun & Bradstreet Data Universal Number System (DUNS) number and have a current registration in the System for Award Management (SAM). See Title 2 of the Code of Federal Regulations (CFR), Part 25 for more information. Exemptions: The SAM registration requirement does not apply to individuals submitting an application on their own behalf and not on behalf of a company or other for-profit entity, state, local or Tribal government, academia or other type of organization.

A. DUNS Registration

Request a DUNS number online at http://fedgov.dnb.com/webform. U.S.-based entities may also request a DUNS number by telephone by calling the Dun & Bradstreet Government Customer Response Center, Monday – Friday, 7 AM to 8 PM CST at the following numbers:

U.S. and U.S Virgin Islands: 1-866-705-5711
Alaska and Puerto Rico: 1-800-234-3867 (Select Option 2, then Option 1)
For Hearing Impaired Customers Only call: 1-877-807-1679 (TTY Line)

Once assigned a DUNS number, entities are responsible for maintaining up-to-date information with Dun & Bradstreet.

B. Entity Registration in SAM

Register in SAM online at http://www.sam.gov/. Once registered in SAM, entities must renew and revalidate their SAM registration at least every 12 months from the date previously registered. Entities are strongly urged to revalidate their registration as often as needed to ensure that their information is up to date and in synch with changes that may have been made to DUNS and IRS information. Foreign entities who wish to be paid directly to a United States bank account must enter and maintain valid and current banking information in SAM.

C. Excluded Entities

Applicant entities or their key project personnel identified in the SAM.gov Exclusions database as ineligible, prohibited/restricted or excluded from receiving Federal contracts, certain subcontracts, and certain Federal assistance and benefits will not be considered for Federal funding, as applicable to the funding being requested under this Federal program.

D. Cost Sharing or Matching:

No cost sharing or matching funds are required.

IV. Application Requirements

To be considered for funding under this funding opportunity, an application must contain:

A. A completed, signed and dated Application for Federal Assistance form. [At a minimum, all NOFOs must require applicants to submit the appropriate Standard Form (SF) 424, Application for Federal Assistance (i.e., SF 424, SF 424-Mandatory, or SF 424-Individual) form. The only exception to the SF 424 requirement is if the program has OMB approval to use an alternative application form. Insert form instructions based on your eligible applicant base. Individuals applying on their own (unrelated to any business or non-profit organization s/he may own or operate in her/his own name) must use the SF 424, Application for Federal Assistance-Individual form (http://apply07.grants.gov/apply/FormLinks?family=12). All other applicants to discretionary programs and for single source awards must use the SF 424, Application for Federal Assistance form (http://apply07.grants.gov/apply/FormLinks?family=15). Mandatory programs may require applicants to use the SF 424, Application for Federal Assistance-Mandatory form (http://apply07.grants.gov/apply/FormLinks?family=16)]. Do not include other Federal

sources of funding, requested or approved, in the total entered in the "Federal" funding box on the Application for Federal Assistance form. Enter only the amount being requested under this program in the "Federal" funding box. Include any other Federal sources of funding in the total funding entered in the "Other" box.

B. Project Summary

Overall, the work proposed here will provide biologically relevant genetic population groupings across the range of sage-grouse beginning with an assessment of current management groupings based on existing management zone and population boundaries. Additionally, we will assess the influence of landscape components on genetic connectivity across the range and within relevant population boundaries. These analyses will allow the USFWS and its partners to incorporate genetic connectivity into landscape conservation planning. We anticipate 5 deliverables for this project: We will derive a final regional grouping (regional-group) shape file (*deliverable 1*) and table describing the ecological and genetic summary statistics within each (*deliverable 2*). In addition to a description of the IBR analyses and simulations we will provide a table of model rankings for each regional group (*deliverable 3*) and the top resistance surfaces describing functional connectivity for sage-grouse (*deliverable 4*). As a final objective we will use known lek sites as nodes in a CIRCUITSCAPE analysis and develop a current map describing probably of movement for sage-grouse between known leks within each regional-group (*deliverable 5*).

C. Project Narrative

1. Statement of Need:

Wildlife populations that are genetically diverse and well connected through dispersal, have a much greater chance of persistence (Hill et al. 2002; Saccheri et al. 2008; Campbell Grant et al. 2010) and ability to cope with environmental changes (Hughes and Stachowicz 2004; Jump et al. 2009) and population threats (e.g., parasites and disease). Thus, identifying the landscape features that promote or impede dispersal for wildlife populations is critical to ensuring the viability of populations across a region. A powerful approach to assessing landscape effects on dispersal involves the quantitative comparison of genetic differentiation to metrics of landscape resistance (McRae 2006; McRae and Beier 2007) between sample locations (e.g., Row et al., 2010; Munshi-South, 2012). If the models developed using resistance surfaces fit better than models fit with straight-line geographic distance, it suggests a link between the characterized landscape and patterns of effective dispersal (i.e., dispersal that results in gene flow). Although this approach is conceptually straight forward, in complex landscapes it is often challenging to select and parameterize a set of biologically meaningful and statistically comparable resistance surfaces, (Spear et al. 2010; Row et al., In Review).

The Greater Sage-Grouse (Centrocercus urophasianus) is distributed across western North America in sagebrush (Artemisia spp.) dominated habitats. Range and population reductions (Schroeder et al. 2004) have led to the species being classified as "warranted, but precluded" from listing under the U.S. Endangered Species Act from 2010 to 2015. We used genetic samples to identify biologically meaningful clusters in Wyoming and assessed variation in population trends among these clusters in Wyoming (Fedy et al. In review). Additionally, across Wyoming we used isolation-by-resistance (IBR) analyses and compared pairwise resistance to

genetic differentiation for a set of ecologically relevant candidate models. This allowed us to assess what habitat components had the strongest influence on genetic connectivity. We found that low quality nesting and winter habitat were strong impediments to movement and best explained genetic differentiation. Similarly, resistance surfaces where low sagebrush cover, high forest cover, and high terrain ruggedness restricted movement also explained significant variation in genetic connectivity (Row et al. 2015). While these results have illuminated the landscape factors that influence effective dispersal for sage-grouse in Wyoming, these patterns will likely differ in other parts of the range, where the quality, quantity, and distribution of habitat differs (Short Bull et al. 2011). Further, sage-grouse in Wyoming are likely connected to populations in neighboring states and expanding the boundaries of our analysis may change our results.

An on-going, large-scale initiative to collect and genotype feather samples of sage-grouse across their range will allow for analyses parallel to those conducted in Wyoming to identify biologically meaningful groups and assess the influence of landscape components on genetic connectivity. Further, the U.S. Fish and Wildlife Service (USFWS) recently developed a range-wide sage-grouse habitat layer with high predictive power in delineating sage-grouse occurrence. This range-wide product offers new opportunities for the development of ecologically-derived range-wide resistance surfaces. Using these data we propose to: 1) establish biologically meaningful groupings for the landscape genetic analyses, 2) develop and compare set of ecologically relevant resistance surfaces that represent ecological hypotheses describing genetic connectivity for sage-grouse within each geographic grouping, and 3) use existing lek locations as current nodes and estimate current flow (i.e., predicted probability of movement) to establish movement corridors within each grouping. Below we describe each of these objectives in more detail and list specific deliverables.

2. Project Goals and Objectives:

1) Establish biologically meaningful groupings for landscape-genetic analyses

The influence of landscape variables on functional connectivity can vary with their availability (Short Bull et al. 2011; Moore et al. 2011). Given the range extent of sage-grouse and significant variability in landscape characteristics across the western United States, identifying meaningful groupings is an important first step that could have an important influence on final results. Thus, we will first summarize the genetic and ecological characteristics (e.g., surrounding percent cover of relevant land classes; anthropogenic disturbance, road density) of sampled sites (lek-site) within two previously defined spatial sage-grouse groupings: 1) sage-grouse management zones SMZ (Stiver, 2006), and 2) Previously define populations (Connelly, 2004) that have been used in range-wide demographic analyses (Garton et al. 2011). Specifically, we will test the biological relevance of these groupings by comparing within and between grouping divergence to the patterns for randomly defined groups and state-based populations. Groups that cannot be distinguished ecologically or genetically will be grouped together. Along with these analyses we will derive a final regional grouping (regional-group) shape file (deliverable 1) and table describing the ecological and genetic summary statistics within each (deliverable 2).

2) Develop and compare a set of ecologically relevant resistance surfaces

Within each regional-group we will compare pairwise genetic differentiation to pairwise resistance for lek-sites using maximum-likelihood population-effects (MLPE) mixed models in a model selection framework (Row et al. 2015). Pairwise resistance between lek-sites will be derived using CIRCUITSCAPE (McRae and Shah 2009), which uses circuit theory (McRae 2006) to estimate landscape resistance based on the amount of current flow between two nodes (i.e., lek sites). Landscape resistance as estimated by current flow is analogous to the probability of movement and thus greater current equates to a lower pairwise resistance (McRae and Beier 2007).

Resistance surfaces will be derived from the USFWS range-wide sage-grouse habitat surface and from individual natural (e.g., sage-brush cover, forest cover, elevation, ruggedness) and anthropogenic (e.g., roads, agricultural fields) landscape features known to influence sage-grouse habitat selection and movement. Raw landscape values must be converted to resistance surfaces and this parameterization, as well as, the development of a comparison model-set can have significant impacts on Type I and Type II error rates (Row et al. 2015; Spear et al. 2010). Thus, prior to running our IBR analyses we will use genetic simulations to assist with parameterizing resistance surface and developing candidate model-sets that minimize overall error rates.

In addition to a description of the IBR analyses and simulations we will provide a table of model rankings for each regional group (deliverable 3) and the top resistance surfaces describing functional connectivity for sage-grouse (deliverable 4).

3) Estimate current flow between know lek locations

As a final objective we will use known lek sites as nodes in a CIRCUITSCAPE analysis and develop a current map describing probably of movement for sage-grouse between known leks within each regional-group (deliverable 5). <u>This final step will allow the USFWS and its partners to incorporate genetic connectivity into landscape conservation planning.</u>

4. Stakeholder Coordination/Involvement:

The Fish and Wildlife Service will:

- Participate with the PI to steer the overall direction and focus of the project's deliverables
- Conduct and review analyses
- In conjunction with the other co-authors, the Service will write research results to ensure both uptake by agencies and scientific publication in a peer review journal.
- Facilitate meetings and teleconferences between the Service and the Principle Investigator

5. Project Monitoring and Evaluation:

Awardee will provide progress and financial reports annually from start date.

6. Description of Entities Undertaking the Project: Provide a brief description of the applicant organization and all participating entities and/or individuals. Identify which of

the proposed activities each agency, organization, group, or individual is responsible for conducting or managing. Provide complete contact information for the individual within the organization that will oversee/manage the project activities on a day-to-day basis.

The Department of Environment and Resource Studies (ERS) at the University of Waterloo offers programs which focus on sustainability and the ethics of solving environmental and resource problems, ranging from water and food to energy and biodiversity. They use techniques and ideas from many disciplines to seek integrative solutions that cross the boundaries between the natural and social sciences, thereby linking knowledge of resources and ecosystems with sustainability policy and governance. Dr. Fedy (*Assistant Professor*) and Dr. Jeff Row (*Post-Doctoral Research Associate*) will be the primary principal investigators responsible for overseeing/managing the project activities on a day-to-day basis. Dr. Doherty (Spatial Ecologist USFWS) will also be a primary principal investigator and will be involved in each phase of research project from design to scientific publication, but will not oversee the project on a day-to-day basis.

Recipient Contact Name and Title: Dr. Brad Fedy, Assistant Professor
Contact Email Address: bfedy@uwaterloo.ca
Office phone: 519-888-4567 ext. 32706

Recipient Organization Name (must match the name on their SF-424): Environment and Resource Studies, University of Waterloo.

Recipient Address:
Environment and Resource Studies
University of Waterloo
200 University Ave. West
Waterloo, ON N2L 3G1

7. **Sustainability:** As applicable, describe which project activities will continue beyond the proposed project period, who will continue the work or act on the results achieved, and how and at what level you expect these future activities will be funded.

N/A

8. Literature Cited

Campbell Grant, E. H., J. D. Nichols, W. H. Lowe, and W. F. Fagan. 2010. Use of multiple dispersal pathways facilitates amphibian persistence in stream networks. Proc. Natl. Acad. Sci. U. S. A. 107:6936–6940.

Connelly, J. W., S. T. Knick, M. A. Schroeder, and S. J. Stiver. 2004. Conservation assessment of greater sage-grouse and sagebrush habitats. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming.

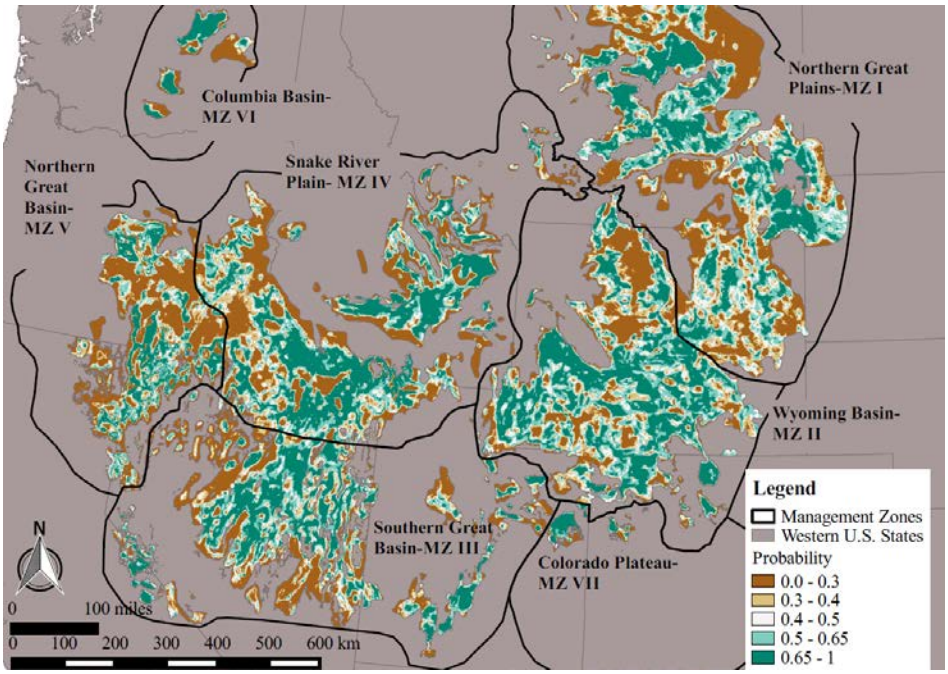
Garton, E. O., J. W. Connelly, J. S. Horne, C. A. Hagen, A. Moser, and M. A. Schroeder. 2011. Greater sage-grouse population dynamics and probability of persistence. in S. T. Knick and J. W. Connelly, editors. Greater sage-grouse: ecology and conservation of a landscape species and its habitats. Studies in Avian Biology Vol. 38. University of California Press, Berkeley, California, USA.

Hill, M. F., A. Hastings, and L. W. Botsford. 2002. The effects of small dispersal rates on extinction times in structured metapopulation models. Am. Nat. 160:389–402.

Hughes, A. R., and J. J. Stachowicz. 2004. Genetic diversity enhances the resistance of a seagrass ecosystem to disturbance. Proc. Natl. Acad. Sci. U. S. A. 101:8998–9002.

Jump, A. S., R. Marchant, and J. Peñuelas. 2009. Environmental change and the option value of genetic diversity. Trends Plant Sci. 14:51–58.
McRae, B. H. 2006. Isolation by resistance. Evolution. 60:1551–1561.
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McRae, B. H., and V. B. Shah. 2009. Circuitscape user's guide. The University of California, Santa Barbara.
Moore, J. a, D. a Tallmon, J. Nielsen, and S. Pyare. 2011. Effects of the landscape on boreal toad gene flow: does the pattern-process relationship hold true across distinct landscapes at the northern range margin? Mol. Ecol. 20:4858–4869.
Munshi-South, J. 2012. Urban landscape genetics: canopy cover predicts gene flow between white-footed mouse (Peromyscus leucopus) populations in New York City. Mol. Ecol. 21:1360–1378.
Row, J. R., G. Blouin-Demers, and S. C. Lougheed. 2010. Habitat distribution influences dispersal and fine-scale genetic population structure of eastern foxsnakes (Mintonius gloydi) across a fragmented landscape. Mol. Ecol. 19:5157–5171.
Row, J. R., S. T. Knick, S. J. Oyler-McCance, S. C. Lougheed, and B. C. Fedy. (n.d.). Developing best practices for linear mixed modelling in landscape genetics through landscape-directed dispersal simulations. Methods Ecol. Evol.
Saccheri, I. J., F. Rousset, P. C. Watts, P. M. Brakefield, and L. M. Cook. 2008. Selection and gene flow on a diminishing cline of melanic peppered moths. Proc. Natl. Acad. Sci. U. S. A. 105:16212–7.
Schroeder, M., C. Aldridge, and A. Apa. 2004. Distribuition of sage-grouse in north america. Condor.
Short Bull, R. A., S. A. Cushman, R. Mace, M. T. Chilton, K. C. Kendall, E. L. Landguth, M. K. Schwartz, K. McKelvey, F. W. Allendorf, and G. Luikart. 2011. Why replication is important in landscape genetics: American black bear in the Rocky Mountains. Mol. Ecol. 20:1092–1107.
Spear, S. F., N. Balkenhol, M.-J. Fortin, B. H. McRae, and K. Scribner. 2010. Use of resistance surfaces for landscape genetic studies: considerations for parameterization and analysis. Mol. Ecol. 19:3576–91.
Stiver, S. J., A. D. Apa, J. Bohne, S. D. Bunnell, P. Deibert, S. Gardner, M. Hilliard, C. McCarthy, and M. A. Schroeder. 2006. Greater sage-grouse comprehensive conservation strategy. Unpublished Report. Western Association of Fish and Wildlife Agencies, Cheyenne, Wyoming, USA.

9. Map of Project Area: The project location encompasses 11 western U.S. states. The map below shows a classified version of the USFWS Greater Sage-grouse breeding habitat probability map which will be linked to genetic gene flow data.



D. Budget Form

Complete the Budget Information for Non-Construction Programs (SF 424A) or Budget Information for Construction Programs (SF 424C) form. Use the SF 424A if your project does not include construction and the SF 424C if the project includes construction or land acquisition. The budget forms are available on the Internet at http://apply07.grants.gov/apply/FormLinks?family=15. When developing your budget, keep in mind that financial assistance awards and subawards are subject to the Federal cost principles in Title 2 of the Code of Federal Regulations Part 200, as applicable to the recipient organization type. Links to the full text of the Federal cost principles are available on the Internet at http://www.ecfr.gov/.

Multiple Federal Funding Sources: If the project budget includes multiple Federal funding sources, you must show the funds being requested from this Federal program *separately* from any other requested/secured Federal sources of funding on the budget form. For example, enter the funds being requested from this Federal program in the first row of the Budget Summary section of the form and then enter funding related to other Federal programs in the subsequent row(s). Be sure to enter each Federal program's CFDA number in the corresponding fields on the form. The CFDA number for this Federal program appears on the first page of this funding opportunity.

E. Budget Justification

In a separate narrative titled "**Budget Justification**", explain and justify all requested budget items/costs. Detail how the SF 424 Budget Object Class Category totals were determined and demonstrate a clear connection between costs and the proposed project activities. For personnel salary costs, include the base-line salary figures and the estimates of time (as percentages) to be directly charged to the project. Describe any item that under the applicable Federal cost principles requires the Service's approval and estimate its cost.

If Federally-funded equipment will be used for the project, provide a list of that equipment, including the Federal funding source.

Required Indirect Cost Statement: All applicants except individuals applying for funds separate from a business or non-profit organization he/she may operate must include in the budget justification narrative one of the following statements and attach to their application any required documentation identified in the applicable statement:

"We are:

1. A U.S. state or local government entity receiving more than $35 million in direct Federal funding each year with an indirect cost rate of [insert rate]. We submit our indirect cost rate proposals to our cognizant agency. A copy of our most recently approved rate agreement/certification is attached.
2. A U.S. state or local government entity receiving less than $35 million in direct Federal funding with an indirect cost rate of [insert rate]. We are required to prepare

and retain for audit an indirect cost rate proposal and related documentation to support those costs.

3. A [insert your organization type; U.S. states and local governments, please use one of the statements above or below] that has previously negotiated or currently has an approved indirect cost rate with our cognizant agency. Our indirect cost rate is [insert rate]. A copy of our most recently approved rate agreement is attached.
4. A [insert your organization type] that has never submitted an indirect cost rate proposal to our cognizant agency. Our indirect cost rate is [insert rate]. In the event an award is made, we will submit an indirect cost rate proposal to our cognizant agency within 90 calendar days after the award is made.
5. A [insert your organization type] that has never submitted an indirect cost rate proposal to our cognizant agency. Our indirect cost rate is [insert rate]. However, in the event an award is made, we will not be able to meet the requirement to submit an indirect cost rate proposal to our cognizant agency within 90 calendar days after award. We request as a condition of award to charge a flat *de minimus* indirect cost rate of 10% of modified total direct costs as defined in Title 2 of the Code of Federal Regulations Part 200, section 200.68. We understand that the 10% *de minimus* rate will apply for the life of the award, including any future extensions for time, and that the rate cannot be changed even if we do establish an approved rate with our cognizant agency at any point during the award period
6. A Non-government Organization that is submitting this proposal for consideration under the Colorado Plateau Cooperative Ecosystems Study Unit which has a Department of the Interior-approved indirect cost rate cap of 17.5%. If we have an approved indirect cost rate with our cognizant agency, we understand that we must apply this reduced rate against the same direct cost base as identified in our approved indirect cost rate agreement. If we do not have an approved indirect cost rate with our cognizant agency, we understand that the basis for direct costs will be the modified total direct cost base defined in 2 CFR 200.68 “Modified Total Direct Cost (MTDC)”. We understand that we must request prior approval from the Service to use the MTDC base instead of the base identified in our approved indirect cost rate agreement, and that Service approval of such a request will be based on: 1) a determination that our approved base is only a subset of the MTDC (such as salaries and wages); and 2) that use of the MTDC base will still result in a reduction of the total indirect costs to be charged to the award.
7. A [insert your organization type] that will charge all costs directly.

All applicants are hereby notified of the following:

- Recipients without an approved indirect cost rate are prohibited from charging indirect costs to a Federal award. Accepting the 10% *de minimus* rate as a condition of award is an approved rate.
- Failure to establish an approved rate during the award period renders all costs otherwise allocable as indirect costs unallowable under the award.

- Only the indirect costs calculated against the Federal portion of the total direct costs may be charged to the Federal award. Recipients may not charge to their Service award any indirect costs calculated against the portion of total direct costs charged to themselves or charged to any other project partner, Federal and non-Federal alike.
- Recipients must have prior written approval from the Service to transfer unallowable indirect costs to amounts budgeted for direct costs or to satisfy cost-sharing or matching requirements under the award.
- Recipients are prohibited from shifting unallowable indirect costs to another Federal award unless specifically authorized to do so by legislation."

Applicants who are individuals applying for funds separate from a business or non-profit organization he/she may operate are not eligible to charge indirect costs to their award. If you are an individual applying for funding, do not include any indirect costs in your proposed budget.

For more information on indirect cost rates, see the Service's **Indirect Costs and Negotiated Indirect Cost Rate Agreements** guidance document on the Internet at http://www.fws.gov/grants/.

Negotiating an Indirect Cost Rate with the Department of the Interior: Entities that do not have a NICRA must first have an open, active Federal award before they can submit an indirect cost rate proposal to their cognizant agency. The Federal awarding agency that provides the largest amount of direct funding to your organization is your cognizant agency, unless otherwise assigned by the White House Office of Management and Budget (OMB). If the Department of the Interior is your cognizant agency, your indirect cost rate will be negotiated by the Interior Business Center (IBC). For more information, contact the IBC at:

Indirect Cost Services
Acquisition Services Directorate, Interior Business Center
U.S. Department of the Interior
2180 Harvard Street, Suite 430
Sacramento, CA 95815
Phone: 916-566-7111
Email: ics@nbc.gov
Internet address: http://www.aqd.nbc.gov/Services/ICS.aspx

F. Single Audit Reporting Statements: As required in Title 2 of the Code of Federal Regulations Part 200, Subpart F, all U.S. states, local governments, federally-recognized Indian tribal governments, and non-profit organizations expending $750,000 USD or more in Federal award funds in a fiscal year must submit a Single Audit report for that year through the Federal Audit Clearinghouse's Internet Data Entry System. All U.S. state, local government, federally-recognized Indian tribal government and non-profit applicants must provide a statement regarding if your organization was/was not required to submit a Single Audit report for the organization's most recently closed fiscal year and, if so, state if that report is available on the Federal Audit Clearinghouse Single Audit Database website (http://harvester.census.gov/sac/) and provide the EIN under which that report was submitted.

Include these statements at the end of the Project Narrative in a section titled "**Single Audit Reporting Statements**".

G. Assurances: Include the appropriate signed and dated Assurances form available online at http://apply07.grants.gov/apply/FormLinks?family=15. Use the **Assurances for Non-Construction Programs (SF 424B)** for construction and land acquisition projects. Use the **Assurances for Construction Programs (SF 424D)** for all other types of projects. Signing this form does not mean that all items on the form are applicable. The form contains language that states that some of the assurances may not be applicable to your organization and/or your project or program.

H. Certification and Disclosure of Lobbying Activities: Under Title 31 of the United States Code, Section 1352, an applicant or recipient must not use any federally appropriated funds (both annually appropriated and continuing appropriations) or matching funds under a grant or cooperative agreement award to pay any person for lobbying in connection with the award. Lobbying is defined as influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress connection with the award. Submission of an application also represents the applicant's certification of the statements in 43 CFR Part 18, Appendix A-Certification Regarding Lobbying. If you/your organization have/has made or agrees to make any payment using non-appropriated funds for lobbying in connection with this project AND the project budget exceeds $100,000, complete and submit the **SF LLL, Disclosure of Lobbying Activities** form. See 43 CFR, Subpart 18.100 for more information on when additional submission of this form is required. Submission of an application also represents the applicant's certification of the statements in 43 CFR Part 18, Appendix A-Certification Regarding Lobbying.

I. Conflict of Interest Disclosures: Applicants must notify the Service in writing of any actual or potential conflicts of interest that are known at the time of application or that may arise during the life of this award, in the event an award is made. Conflicts of interest include any relationship or matter which might place the recipient, the recipient's employees, or the recipient's subrecipients in a position of conflict, real or apparent, between their responsibilities under the award and any other outside interests. Conflicts of interest may also include, but are not limited to, direct or indirect financial interests, close personal relationships, positions of trust in outside organizations, consideration of future employment arrangements with a different organization, or decision-making affecting the award that would cause a reasonable person with knowledge of the relevant facts to question the impartiality of the applicant, the applicant's employees, or the applicant's future subrecipients in the matter. Upon receipt of such a notice, the Service Project Officer in consultation with their Ethics Counselor will determine if a conflict of interest exists and, if so, if there are any possible actions to be taken by the applicant to reduce or resolve the conflict. Failure to resolve conflicts of interest in a manner that satisfies the Service may result in the project not being select for funding.

Application Checklist

- ☐ **Evidence of non-profit status**: If a non-profit organization, a copy of their Section 501(c)(3) or (4) status determination letter received from the Internal Revenue Service.
- ☐ **SF 424, Application for Federal Assistance**: A complete, signed and dated SF 424, SF 424-Mandatory, or SF 424-Individual form.
- ☐ **Project summary**
- ☐ **Project narrative**
- ☐ **Timetable**
- ☐ **Description of key personnel qualifications**
- ☐ **Single Audit Reporting statement**: If a U.S. state, local government, federally-recognized Indian tribal government, or non-profit organization, statements regarding applicability of and compliance with Single Audit reporting requirements.
- ☐ **SF 424 budget form**: A complete SF 424A or SF 424C Budget Information form.
- ☐ **Budget justification**
- ☐ **Federally-funded equipment list**: If Federally-funded equipment will be used for the project, a list of that equipment.
- ☐ **NICRA**: When applicable, a copy of the organization's current Negotiated Indirect Cost Rate Agreement.
- ☐ **SF 424 Assurances form:** Signed and dated SF 424B or SF 424D Assurances form.
- ☐ **SF LLL form:** If applicable, completed SF-LLL Disclosure of Lobbying Activities form.

Failure to provide complete information may cause delays, postponement, or rejection of the application.

V. Submission Instructions
SUBMISSION DEADLINE: **N/A**

Intergovernmental Review: Before submitting an application, U.S. state and local government applicants should visit the following website (http://www.whitehouse.gov/omb/grants_spoc/) to determine whether their application is subject to the state intergovernmental review process under Executive Order (E.O.) 12372 "Intergovernmental review of Federal Programs." E.O. 12372 was issued to foster the intergovernmental partnership and strengthen federalism by relying on state and local processes for the coordination and review of proposed Federal financial assistance and direct Federal development. The E.O. allows each state to designate an entity to perform this function. The official list of designated entities is posted on the website. Contact your state's designated entity for more information on the process the state requires to be followed when applying for assistance. States that do not have a designated entity listed on the website have chosen not to participate in the review process.

VI. Application Review
Criteria: To be considered for funding, applications must **N/A**

Review and Selection Process:
The Region 6 Science Application program selected the individual to award this contract for three reason: 1) The P.I. and his post doc recently pioneered methodology to link genetics data to Greater Sage-grouse habitat models and were able to publish their work in a high tier peer review journal, 2) The P.I. has genetic samples in hand which would cost over a $1,000,000 to collect individually, 3) the P.I. has a proven track record of completing projects and delivering high quality work.

Each fiscal year, for every entity receiving one or more awards in that fiscal year, the Service conducts a risk assessment based on eight risk categories. The result of this risk assessment is used to establish a monitoring plan for all awards to the entity in that fiscal year. The Service's risk assessment form is available on the Internet at http://www.fws.gov/forms/3-2462.pdf.

VII. Award Administration

Award Notices: Following review, applicants may be requested to revise the project scope and/or budget before an award is made. Successful applicants will receive written notice in the form of a notice of award document. Notices of award are typically sent to recipients by e-mail. If e-mail notification is unsuccessful, the documents will be sent by courier mail (e.g., FedEx, DHL or UPS). Award recipients are not required to sign/return the Notice of Award document. Acceptance of an award is defined as starting work, drawing down funds, or accepting the award via electronic means. Awards are based on the application submitted to, and as approved by, the Service. The notice of award document will include instructions specific to each recipient on how to request payment. If applicable, the instructions will detail any additional information/forms required and where to submit payment requests.

Domestic Recipient Payments: Prior to award, the Service program office will contact you/your organization to either enroll in the U.S. Treasury's Automated Standard Application for Payments (ASAP) system or, if eligible, obtain approval from the Department of the Interior to be waived from using ASAP.

Transmittal of Sensitive Data: Recipients are responsible for ensuring any sensitive data being sent to the Service is protected during its transmission/delivery. The Service strongly recommends that recipients use the most secure transmission/delivery method available. The Service recommends the following digital transmission methods: secure digital faxing; encrypted emails; emailing a password protected zipped/compressed file attachment in one email followed by the password in a second email; or emailing a zipped/compressed file attachment. The Service strongly encourages recipients sending sensitive data in paper copy to use a courier mail service. Recipients may also contact their Service Project Officer and provide any sensitive data over the telephone.

Award Terms and Conditions: Acceptance of a financial assistance award (i.e., grant or cooperative agreement) from the Service carries with it the responsibility to be aware of and comply with the terms and conditions applicable to the award. Acceptance is defined as the start of work, drawing down funds, or accepting the award via electronic means. Awards are based on the application submitted to and approved by the Service and are subject to the terms and conditions incorporated into the notice of award either by direct citation or by reference to the

following: Federal regulations; program legislation or regulation; and special award terms and conditions. The Federal regulations applicable to Service awards are available on the Internet at http://www.fws.gov/grants/. If you do not have access to the Internet and require a full text copy of the award terms and conditions, contact the Service point of contact identified in the Agency Contacts section below.

Recipient Reporting Requirements:
Financial and Performance Reports: Interim financial reports and performance reports may be required. Interim reports will be required no more frequently than quarterly, and no less frequently than annually. A final financial report and a final performance report will be required and are due within 90 calendar days of the end date of the award. Performance reports must contain: 1) a comparison of actual accomplishments with the goals and objectives of the award as detailed in the approved scope of work; 2) a description of reasons why established goals were not met, if appropriate; and 3) any other pertinent information relevant to the project results.

Significant Developments Reports: Events may occur between the scheduled performance reporting dates that have significant impact upon the supported activity. In such cases, recipients are required to notify the Service in writing as soon as the following types of conditions become known:

- Problems, delays, or adverse conditions that will materially impair the ability to meet the objective of the Federal award. This disclosure must include a statement of any corrective action(s) taken or contemplated, and any assistance needed to resolve the situation.
- Favorable developments that enable meeting time schedules and objectives sooner or at less cost than anticipated or producing more or different beneficial results than originally planned.

The Service will specify in the notice of award document the reporting and reporting frequency applicable to the award.

Conflict of Interest Disclosures: Recipients are responsible for notifying the Service Project Officer in writing of any actual or potential conflicts of interest that may arise during the life of this award. Conflicts of interest include any relationship or matter which might place the recipient, the recipient's employees, or the recipient's subrecipients in a position of conflict, real or apparent, between their responsibilities under this award and any other outside interests. Conflicts of interest may also include, but are not limited to, direct or indirect financial interests, close personal relationships, positions of trust in outside organizations, consideration of future employment arrangements with a different organization, or decision-making affecting the award that would cause a reasonable person with knowledge of the relevant facts to question the impartiality of the Recipient, the Recipient's employees, or the Recipient's subrecipients in the matter. Upon receipt of such a notice, the Service Project Officer in consultation with their Ethics Counselor will determine if a conflict of interest exists and, if so, if there are any possible actions to be taken by the Recipient, the Recipient's employee(s), or the Recipient's Subrecipient(s) that could reduce or resolve the conflict. Failure to resolve conflicts of interest in

a manner that satisfies the Service may result in any of the remedies described in 2 CFR 200.338, Remedies for Noncompliance, including termination of this award.

Other Mandatory Disclosures: Recipients and their subrecipients must disclose, in a timely manner and in writing, to the Service or pass-through entity all violations of Federal criminal law involving fraud, bribery, or gratuity violations potentially affecting this award. Failure to make required disclosures can result in any of the remedies described in 2 CFR 200.338, Remedies for noncompliance, including suspension or debarment (See 2 CFR 200.113, 2 CFR Part 180, and 31 U.S.C. 3321).

VIII. Agency Contacts

Project Officer Name: Kevin Doherty
Project Officer Address: 134 Union Blvd, Lakewood, CO 80028
Project Officer Phone Number: 303-921-0524
Project Officer Email Address: kevin_doherty@fws.gov

Administrative Officer Name: Jennifer Turkington
Administrative Officer Email Address: 134 Union Blvd, Lakewood, CO 80028