U.S. Fish & Wildlife Service

Greater Sage-Grouse

Range-Wide Mitigation Framework

VERSION 1.0
September 3, 2014

Greater Sage-Grouse

Range-Wide Mitigation Framework

DOCUMENT STRUCTURE

PART I provides general goals and regulatory considerations for any mitigation program within the context of the mitigation hierarchy

PART II provides overarching mitigation principles, standards, and recommendations for the development of mitigation processes and programs

APPENDIX I glossary of important terms, *italicized* on first use in this document

APPENDIX II detailed questions to consider when developing or assessing a mitigation program

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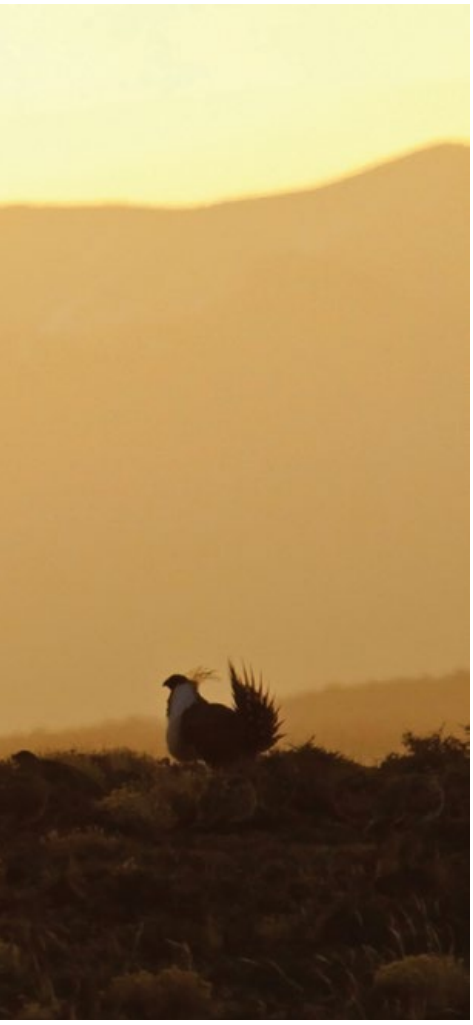


Document Purpose

In 2010, the U. S. Fish and Wildlife Service (Service) determined that the greater sage-grouse (Centrocercus urophasianus; hereafter sage-grouse) warranted protections under the Endangered Species Act (ESA). This finding was based on two primary factors: 1) the present or threatened destruction, modification, or curtailment of habitat or range, and 2) the inadequacy of existing regulatory mechanisms.

The purpose of this document (Framework) is to communicate some of the factors the Service is likely to consider in evaluating the efficacy of mitigation practices and programs in reducing threats to sage-grouse. The recommendations provided here are consistent with the information and conservation objectives provided in the 2013 Conservation Objectives Team (COT) Report[1] for sage-grouse.

The Service recommends an avoidance first strategy be employed for all identified sage-grouse habitat, especially *Priority Areas for Conservation* (PACs) and other areas of habitat identified as important to sage-grouse populations. Unavoidable impacts occurring in any sage-grouse habitat should be fully compensated.

This document is guidance only and subject to modification as new information on sage-grouse science or mitigation policies emerge. As subject-specific mitigation guidance related to sage-grouse is developed, it may to be appended to this document.

continued on pg 2

mitigation

As used in this document, the term **mitigation** encompasses the full suite of activities to avoid, minimize, and compensate for adverse impacts to sage-grouse and sage-grouse habitat.

Our goals in providing this Framework are twofold:

- Help states, the Bureau of Land Management (BLM), and other partners develop and implement coordinated and robust mitigation processes across the range to reduce threats and the potential need to list the species under the ESA; and
- If the sage-grouse should be listed, application of these recommendations will improve permitting processes, Section 7 consultations, mitigation outcomes, and contribute to sage-grouse recovery.

[1] http://www.fws.gov/mountain-prairie/species/birds/sagegrouse/COT/COT-Report-with-Dear-Interested-Reader-Letter.pdf

Document Purpose *(continued)*

The Service recognizes that state wildlife agencies have management expertise, authority, and responsibility for sage-grouse conservation in their respective jurisdictions and that private and public land managers have management expertise and authority for sage-grouse habitat conservation. Coordination among federal, state and local agencies, tribes, and stakeholders in forming landscape-scale strategies that include mitigation processes is vital. Using this Framework as a guide can promote consistency in mitigation programs across the species' range and across agencies while providing for some degree of local flexibility.

- Consistency will better enable stakeholders to implement established mitigation actions that positively affect sage-grouse conservation. Consistency will enable the Service to better assess the intended biological effects of these mitigation efforts at the range-wide scale. It is important that locally-adopted processes support national and regional sage-grouse management goals and result in a reporting process that is sufficiently standardized so that data, threats, and accomplishments can be adequately conveyed.

- The Service believes it is important to maintain flexibility in this Framework to accommodate the many differences in the regulatory, socio-economic, and ecological environments between and within states that influence the efficacy of any tool. Flexibility will also allow for and encourage local innovation as programs are developed and tested.

- Generally, while mitigation programs can be flexible to accommodate social and economic considerations, it is important that program elements are based on sound science and are linked to conservation objectives in a transparent manner. Ultimately, we all must be able to demonstrate that impacts are truly unavoidable, compensatory actions appropriately mitigate residual impacts, and the net effect is a conservation gain to the species.

There is no one right or correct design for a mitigation program. Rather, our hope in providing this guidance is that it will encourage consistency across the range and help our many partners develop mitigation processes that simultaneously conserve sage-grouse while maintaining or enhancing economic opportunities throughout the sage-grouse range. Mitigation processes should be fair, implementable, fully compensatory, and effective for sage-grouse.

RELATIONSHIP TO MITIGATION AND RELATED POLICIES AND GUIDANCE

This Framework draws from a variety of mitigation and related policies and guidance, including the Secretary of the Interior's Order 3330[2] entitled "Improving Mitigation Policies and Practices of the Department of the Interior" (October 31, 2013) and the Department of Interior's mitigation report (April 2014).[3] This Framework is consistent with these recent Departmental statements regarding mitigation.

As appropriate, this Framework also draws from the Service's 1981 Mitigation Policy and 2003 conservation banking guidance. However, these Service policies do not specifically cover mitigation for non-listed species, such as the greater sage-grouse. In addition, the scope and terminology of mitigation approaches has grown since these policies were adopted. As a result, the Service is currently in the process of revising its 1981 Mitigation Policy and establishing a new ESA Compensatory Mitigation Policy that will replace the 2003 conservation banking guidance and provide operational detail lacking in current guidance.

These efforts align agency mitigation policies with the Department's recent statements regarding mitigation and current mitigation principles. This Framework reflects accepted principles and standards in the current mitigation realm and principles of the DOI Report, which will in turn form the basis for near future Service-wide mitigation policies. As new Service policy or guidance relevant to this Framework is released, the Service will consider amending this Framework.

[2] http://www.doi.gov/news/upload/Secretarial-Order-Mitigation.pdf
[3] http://www.doi.gov/news/upload/Mitigation-Report-to-the-Secretary_FINAL_04_08_14.pdf

VERSION 1.0 NOTE

In July 2014, the Service released a draft policy for Voluntary Prelisting Conservation Efforts. There are similarities and differences between the proposed policy and this Framework. Central to both efforts is incentivizing landowners, states, and federal partners to conserve at-risk species by recognizing that actions taken prior to listing can be counted as potential mitigation for future impacts, should a species be listed. The draft policy proposes the program be state-administered and only cover actions that are truly voluntary and not required by a federal, state, or local regulatory mechanism.

The principles and standards in this Framework are applicable to both voluntary and regulatory programs. However, through the Framework the Service encourages any stakeholder, including our federal partners, to develop robust mitigation programs under their applicable regulatory mechanisms and authorities.

Specific to Candidate Conservation Agreement with Assurances (CCAAs), both the Framework and the proposed policy accept that conservation actions above those commitments agreed to in a CCAA may be applied as mitigation. This Framework provides additional sideboards regarding how mitigation actions may be implemented on land enrolled in a CCAA.

The Service encourages our partners to provide feedback on the proposed policy during the public review period.

PART I
Mitigation Program Goals & General Considerations

Mitigation Program Goals

As described above, the Service expects mitigation approaches across the range to be flexible and innovative in how unavoidable impacts from development are mitigated. However, we recommend that all mitigation programs strive for the following goals and incorporate the principles and standards outlined in this document to increase likelihood of contributing to successful sage-grouse conservation.

1. **Achieve net positive conservation.** Mitigation programs should be strategically designed to result in net overall positive outcomes for sage-grouse. This is accomplished by employing avoidance, minimization, and *compensatory mitigation* actions that are based on accepted mitigation principles and standards, use best available science for sage-grouse conservation, and address population-level threats within landscape-level plans. Programs that are structured with a goal of only *no net loss* will be evaluated more conservatively by the Service because they are unlikely to positively influence the conservation status of the species.

2. **Don't reinvent the wheel, integrate existing processes.** To the extent practical and where national management and reporting goals are supported, the program should integrate existing regional, state, and local-level processes as the authorizing, implementing, and enforcement tools for a mitigation program. Partnerships should result in mitigation implementation strategies that prevent fragmented landscapes, restore core areas, and provide connectivity necessary to sustain sage-grouse populations regardless of land ownership or jurisdictional borders.

3. **Make sage-grouse an asset, not a liability.** The mitigation program should provide economic incentives for private landowners and industry to conserve and restore sage-grouse and its habitat. The program should allow for well-sited, well-designed, and appropriately mitigated actions to move forward smoothly and quickly.

4. **Be consistent and fair.** Structure mitigation programs to apply the mitigation hierarchy (avoidance, then minimization, followed by compensatory mitigation) consistently across anthropogenic activities that impact sagegrouse including energy, infrastructure development, land conversion, ex-urban development, mining, and others as appropriate.

Generally, a mitigation program for sage-grouse should address how impacts will be avoided and how a *net conservation gain* will be achieved by compensatory mitigation for unavoidable impacts to sage-grouse across all habitats. Before developing a mitigation program, the Service recommends first considering the types of development activities that will be covered, how avoidance will be assessed, the regulatory mechanisms that relate to those activities, and if regulatory predictability within the context of the ESA is desired. Each of these topics will be covered in this section. See Appendix 2 for specific questions to consider.

Covered Activities

A robust mitigation program will clearly identify the development activities and the associated direct and indirect impacts that may negatively affect sage-grouse; the avoidance, minimization, and compensatory mitigation standards for addressing those impacts; and the consequences of mitigation failure.

While generally some impacts will be universal to each development activity, the actual impacts from such activities will be determined by site-specific parameters (e.g. landscape level values, habitat type impacted, and proximity to leks). Mitigation processes should provide proponents the ability to incorporate mitigation objectives into the design of projects.

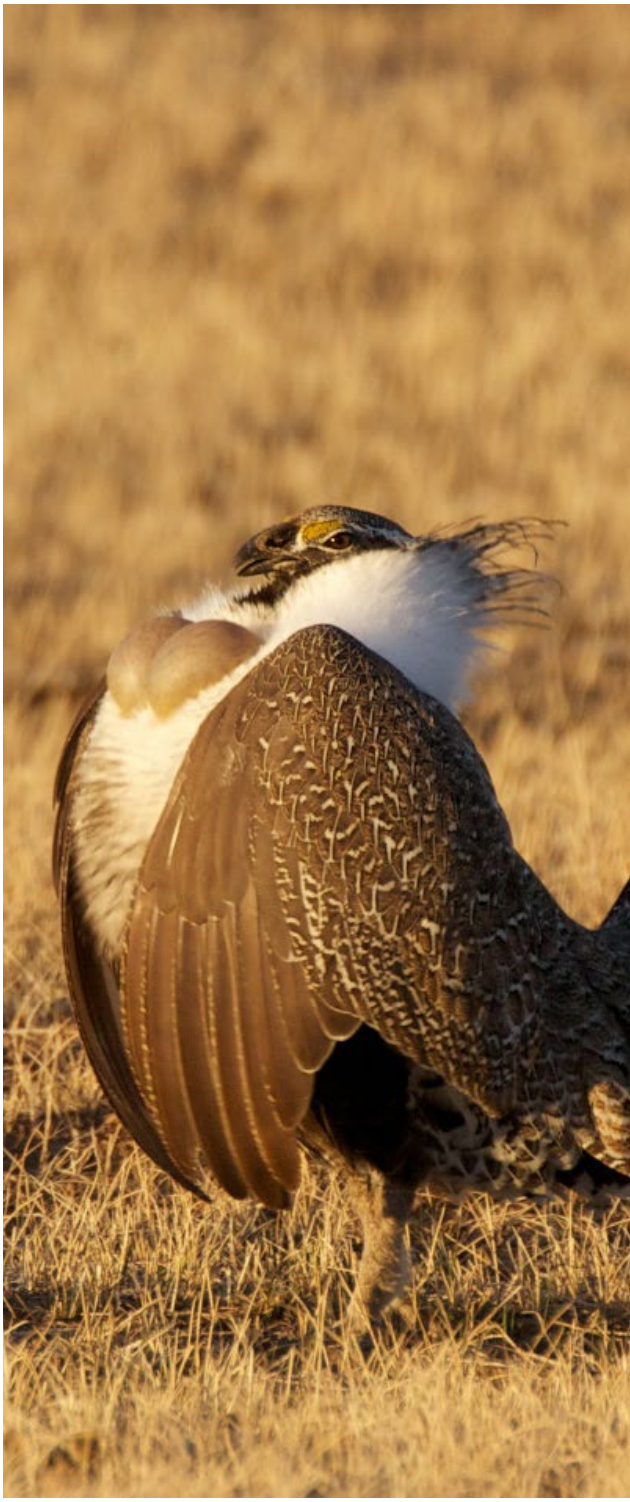
At a minimum, mitigation programs should cover anthropogenic development actions that:

- Negatively impact sage-grouse habitat, especially those identified as threats in the COT Report;
- Create spatially discreet, measurable impacts; and
- Are implemented, funded, or permitted by federal, state, or local agencies.

The mitigation program should describe the impact assessment methodology that will be used to measure a development activity's remaining and unavoidable direct and indirect effects to sage-grouse over the life of a development and its impacts, and quantify the potential direct and indirect impacts that likely accrue from each of the specific development types.

The COT Report describes the types of developments that cause the greatest direct and indirect impacts to sage-grouse and provides initial guidance on impact avoidance, minimization, and to a lesser extent compensatory mitigation for these development activities. It can be used as a starting point to further refine and identify local impacts to be considered in a mitigation program.

Activities such as irregular off-road recreational vehicle use or over-grazing may be difficult to both measure and address in mitigation programs due to the diffuse nature of these impacts.



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Avoidance & Minimization

The Service strongly recommends avoidance of direct and indirect impacts to sage grouse habitat, especially in PACs and other habitats identified as important (*see* COT Report). Compensatory mitigation should only be considered if efforts to avoid and minimize the direct effects, indirect effects, and cumulative impacts (each as defined in 40 CFR §§1500-1508) of a development project have been exhausted or are not possible.

Direct effects are caused by an action and occur at the same time and place. Indirect effects are those that are caused by or will result from an action and are later in time or farther removed in distance, but are still reasonably foreseeable. The result is an affect to some aspect of the species' ecology which diminishes the species' ability to shelter, feed, or breed. For example, tall anthropogenic structures can cause avoidance behavior of sage-grouse to leks and brood rearing areas well beyond their direct development footprints.

Cumulative impacts result from the incremental or synergistic impact of an action when added to other past, present, and reasonable foreseeable future actions. For example, outside of its direct footprint a development may, over time, result in a loss of suitability of surrounding habitat through isolation, increased noise levels, acceleration of invasive species colonization, degraded water quality inputs, or other factors.

Avoidance mechanisms can include moving a project, the use of exclusion areas, and caps on habitat disturbance to prevent negative impacts. True avoidance is only achieved when sage-grouse and/or their habitat have no exposure to the activities associated with the action or the activities will have no effect on sage-grouse behavior or habitat use over time.

Minimization mechanisms can include, for example, timing stipulations for noise or other activities which may disturb sage-grouse, removing water sources to reduce exposure to West Nile virus, limiting activities or practices that may result in wildfires, best management practices for construction projects to prevent invasive plant issues, predator attractant management, co-location or burying of necessary support utilities, and/or marking fences to minimize direct mortality of birds. Most minimization actions will still have temporary (e.g. construction-related) or residual effects (e.g. reducing noise may not eliminate all effects) that should be accounted for, avoided, and if unavoidable then offset through compensatory actions.

By fully avoiding impacts up front, there is no need to take additional mitigation hierarchy steps. Compensatory mitigation should only occur when disturbances are proven unavoidable, minimization does not provide for complete direct or indirect impact avoidance, or avoidance and minimization cannot achieve the best possible conservation outcome for the species. For the purposes of this document, we borrow from general mitigation banking terminology and refer to any impact as a *debit* and any compensatory mitigation action as a *credit*.

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Regulatory Mechanism

The combination of increased development and the inadequacy of regulatory mechanisms in requiring proposed development to avoid impacts is a pressing issue for sage-grouse conservation. Even in areas where the primary threat is not development, providing adequate regulatory mechanisms to address anthropogenic impacts and other threats is necessary to ensure long-term protection of the species.

States hold the primary responsibilities for the management of sage-grouse, while federal agencies manage almost two-thirds of the species' habitat. The Service recommends clearly identifying the federal, state, local and tribal regulatory mechanisms for siting and permitting each major development type that impacts sage-grouse. It is important to note if environmental review is triggered for each development type and how that review may result in avoidance, minimization, and offset requirements. A lack of clear regulatory incentives to follow the mitigation hierarchy will decrease the Service's ability to assess the long-term likelihood of successful implementation.

Regulatory Predictability and ESA

While mitigation programs should be designed first with an eye towards conserving sage-grouse, and thus be able to function outside the ESA, users and suppliers of compensatory mitigation may still wish to know from the Service that any mitigation actions produced in advance of a potential listing will count in a post-listing scenario.

A program that utilizes *prelisting mitigation* credits could provide a major incentive to get conservation on the ground now and may also be a market driver for mitigation programs. In this guidance, prelisting mitigation refers to explicit recognition from the Service that actions or credits developed or acquired both in advance of impacts, and in advance of a listing decision, will be considered as a conservation action in a status review. These credits may be used as compensatory mitigation through ESA consultations should the species be listed, in which case the status review will evaluate the net effect of the actions or credits produced. Additionally, suppliers of compensatory mitigation may be able to attain regulatory predictability that, should the species become federally listed, the management to which they agreed will not change and/or incidental take coverage will be provided for these management actions.

Programs with prelisting mitigation options that wish to have these credits treated as measures to minimize and mitigate the impact of incidental take, should sage-grouse be listed, will need to enter into a prelisting mitigation agreement with the Service.

Securing mitigation prior to project development should not act as a substitute for avoiding and minimizing impacts. Developers should design their projects to avoid and minimize direct, indirect, and cumulative biological impacts regardless of whether compensatory mitigation credits have already been acquired.

If sage-grouse is listed, robust mitigation programs endorsed by the Service and implemented prior to the listing decision can provide benefits to participants and sage-grouse alike. Most importantly, such programs will more likely be designed to contribute to recovery. In addition, if the species is listed as threatened, the Service may propose a special rule under section 4(d) of the ESA to allow for take incidental to activities conducted pursuant to an adequate local mitigation program. The Service will work closely with interested states or other stakeholders to provide greater regulatory predictability, to the extent possible, for these advanced implemented mitigation actions.

PART II
Principles, Standards & Mitigation Program Elements

Principles of Mitigation

Any mitigation program for sage-grouse which includes compensatory mitigation is best developed consistent with the goals outlined in the beginning of this document and with the following principles, which are meant to provide clarity and guidance in cases where the Framework is silent or unclear:

- **Observe an appropriate mitigation sequence:** Compensatory mitigation is only considered after all avoidance and minimization measures have been explored. Avoidance is the most desirable approach to preventing impacts to sage-grouse from development.
- **Attain net conservation gain:** Overall outcomes must result in no net loss to the species at the population or landscape-scale. To achieve this and improve overall conservation status, programs should be structured to attain a net conservation gain.
- **Use a landscape-scale approach to inform mitigation:** Develop mitigation programs in conjunction with, or guided by, a landscape-level conservation plan. Cross-jurisdictional partnerships are better positioned to design mitigation strategies that will prevent fragmented landscapes and restore core areas and connectivity necessary to sustain the sage-grouse.
- **Ensure transparency, consistency, and participation:** Use timely and transparent processes that provide predictability and uniformity through the consistent application of standards, protocols, and metrics developed to achieve effective mitigation. Appropriate and effective stakeholder participation in mitigation recommendations and decisions should be facilitated.
- **Base mitigation decisions in science:** Use the best available science in formulating mitigation recommendations and decisions, consistent with all applicable policy.

Standards of Mitigation

Approaches to compensatory mitigation that follow these principles and adhere to the standards below are expected to achieve the best outcomes for conservation through effective management of the risks associated with compensatory mitigation. Application of equivalent standards across all compensatory mitigation sources will better ensure conservation goals are met.

- **Siting:** The mitigation sequencing hierarchy should be applied in the context of conservation objectives derived by a landscape-scale approach. Compensatory mitigation actions should be sited in locations that have been identified in conservation plans to most likely successfully and fully compensate losses to sage-grouse.
- **Duration:** Compensatory mitigation actions should achieve targeted biological conditions in a timeframe commensurate and proportional with the biological impacts to be offset.
- **Additionality:** Actions proposed as compensatory mitigation should provide benefits beyond those that would be achieved if the mitigation actions had not taken place and should exceed what is otherwise required by federal, state, and local regulations.
- **Effectiveness:** Compensatory mitigation actions should be proven to be reasonably likely to deliver expected conservation benefits, target those actions that will provide the greatest benefit to sage-grouse, and be measurable.
- **Durability:** Actions or plans proposed as compensatory mitigation must be accompanied by management, legal, and financial assurances that ensure the action or plan will be in place and effective for the intended duration. Assurances should address the unintentional loss as well as the intentional loss of a compensatory mitigation action.
- **Metrics:** Determinations of the expected impacts of actions and the measures necessary to avoid, minimize, or compensate for those impacts should be based on biological conditions and upon reliable, repeatable, and quantitative science-based methods.

Mitigation Program Elements

With these principles and standards in mind, the following discussion provides specific information to consider when developing a compensatory mitigation program.

With sage-grouse it is important that the program's rules governing *additionality*, *effectiveness*, and *durability* are designed in a way that is equitable between public and private lands and can address potential issues with properties of *split estate* ownership.

The information provided below, plus the list of detailed questions in Appendix 2, are designed to help entities develop thoughtful and robust mitigation programs and processes in the context of the full mitigation hierarchy.

1. PROGRAM GOVERNANCE

The Service encourages our state and federal partners to integrate mitigation planning into a broader ecological landscape context, which means moving toward a programmatic approach. Whether mitigation requirements occur through a local (e.g. county) permit process or a larger state- or regionally-administered program covering many permitting agencies, a mitigation program requires a broad array of elements and functions to operate.

Program goals, covered activities, requirements, and administrative roles should be clearly defined. The program should address how the mitigation hierarchy will be implemented, account for avoidance, and clearly establish when and why impacts are deemed unavoidable. To improve operational certainty in compensatory mitigation, programs should clarify up front the manner in which mitigation obligations will be quantified, the types of actions that will qualify as mitigation, and the consequences of mitigation failure. Because sage-grouse is a landscape-scale species, a process for coordinating mitigation programs both intra- and inter-state should be outlined within programs.

1a. Mitigation Program Types

Traditional compensatory mitigation mechanisms include *permittee responsible mitigation*, *conservation banks*, *in-lieu fee*, and other third party mitigation programs (e.g. *habitat credit trading systems* or *habitat credit exchanges*). The mitigation mechanisms differ by who is ultimately responsible for the success of the mitigation site (the permittee or a third party) and when mitigation actions occur relative to impacts.

The Service prefers mitigation programs that promote compensatory mitigation achieved prior to impacts, aggregate mitigation as part of a larger landscape approach, and provide long term protection and management of mitigation sites. Regardless of the type of mitigation mechanism utilized, mitigation actions or types should be held to equivalent standards for siting, duration, additionality, effectiveness, and durability and utilize consistent metrics.

CONSERVATION BANKING

The Service has a proven track record with conservation banking agreements and such agreements represent a familiar and durable type of mitigation program. While some deviations may be needed to develop a commercially viable and biologically relevant sage-grouse compensatory mitigation program, the closer the requirements of a compensatory mitigation program track those of conservation banking, the more likely the program is to provide certainty of implementation and effectiveness in improving the status of the species.

1. PROGRAM GOVERNANCE *(continued)*

1b. Program Administration

The *program administrator* will be the entity with enforcing authority for the establishment, operation, and management of a mitigation program. The administrator or their designee(s) must have the ability to enforce management actions, reconcile funding issues, incorporate adaptive management, track debits and credits, report results, etc.

The degree of authority granted to the administrator ensures that conservation benefits from compensatory mitigation will persist.

Since successful habitat conservation will require coordination across federal, state, tribal, and private interests, the program administrator should be recognized through a formal agreement developed with major stakeholders including federal, state, and tribal partners. The agreement should clearly articulate the selection process for any third party responsible for administration of various elements of the program.

The entity handling monetary funds must have the ability to separately manage, collect, and distribute funds.

Prior to collection of any funds, plans should be in place that explain the maximum time funds can be held before spent, how funds will be invested (including inflation protection), tracking and accounting for benefits generated by funds, guidelines for avoiding potential conflicts of interest between collecting and spending funds, and responsibility for performance of mitigation projects.

1c. Compliance and Enforcement

Compliance can be monitored several ways, including through a credit verification process, tracking system, and review of periodic monitoring reports. Processes to verify that mitigation actions meet program standards and are releasable for offsetting impacts provide assurance that compensatory mitigation sites are delivering benefits. A system to track both debits and credits is essential in ensuring compliance, increasing transparency, and allowing the administrator to determine the success of mitigation efforts in achieving conservation.

Monitoring reports at both the program and site level should be required at least annually. Monitoring should be structured to provide feedback on which compensation projects and actions successfully yield intended results and which have a higher likelihood of failure. Site-level reports should document site conditions, attainment of administrative and ecological *performance standards* (measurable attributes used to determine if the management plan meets the agreed upon goals and objectives), and management actions taken and expected to be taken in the future.

Enforcement structure and procedures should be developed at the program level. At the site level, agreements should include clear enforcement provisions that dictate the consequences of non-compliance, including a requirement that if the compensation fails to meet performance standards, the mitigation provider should provide equal compensation through other means. If the agreement holder does not satisfy the mitigation requirements, the regulating entity should have the ability to suspend or terminate credit releases, credit sales, or the agreement itself and pursue penalties for violations as appropriate.

1d. Role of the Service

The exact nature of the Service's involvement in any given mitigation program will vary and may include the following roles:

- Provide ongoing expertise and advice to state mitigation programs and state wildlife agencies as requested;
- Participate as a member of the BLM "WAFWA (Western Association of Fish and Wildlife Agencies) Management Zone Greater Sage-Grouse Conservation Team" or similar regional teams;
- Provide, as necessary, any conferencing or consultations which may result from mitigation projects or programs on federal lands;
- Accept and evaluate annual reports from mitigation programs, including evaluation of the effectiveness of any mitigation performed in relation to both sage-grouse and mitigation program functionality monitoring;
- Review and consider for approval or endorsement programs that seek to provide prelisting mitigation credits.

1e. Confidentiality

The Service recognizes that some participants in mitigation programs, especially private land compensatory mitigation providers, may be concerned about the potential for public disclosure of information through local, state, or federal rules. We recommend that any mitigation program provide for a transparent process by which the actions and effectiveness of the entire mitigation program can be evaluated, and that individual agreement holders be made aware of any potential for information to be publicly disclosed by participation in these programs.

2. DEVELOPING SERVICE AREAS

Identifying geographic areas where compensatory mitigation can best be located and successfully implemented is critical to ensuring that unavoidable impacts are adequately offset. In traditional mitigation terms this is known as a *service area*, the geographic area within which credits may be applied to offset debits associated with development activities. Service areas are mapped geographies with unique ecological and sometimes political significance. In general, larger service areas provide greater flexibility to exchange credits and debits. Landscape, economic, and regulatory realities inform and constrain decisions on service areas.

The geographic extent of a service area should be guided by the conservation needs of sage-grouse. Populations are identified in the COT Report. This is a recommended starting point. The location of the COT PACs, other key habitats defined in local plans, and the current and potential for future threats to a population should factor strongly into the designation and size of service areas. For larger populations, PACs may be a more appropriate scale for service areas so that PACs are kept as strongholds. For small populations, offsets may be most appropriately kept within that population. For small or large populations with positive population trends, offsets may be best directed at connecting habitat. If a particular area is under heavy development pressure, it may be best to focus offsets on an area removed from possible cumulative effects of those impacts. Service areas should reflect these more local population-based conservation needs.

To meet conservation goals and provide flexibility in mitigation programs, secondary service areas may be devised. A secondary service area is a larger area within which mitigation would be acceptable if more preferable options in the primary service area do not exist. Typically, a proximity factor (i.e. additional mitigation in the form of a multiplier or increased *mitigation ratio*) is added to mitigation going outside the primary service area. These tools can provide for flexibility of trades between service areas while encouraging offsets to stay within certain areas.

Jurisdictional issues should also be considered when developing service areas. Many large-scale development projects cross state and county boundaries. Service areas that span such political boundaries, though they have little to no biological or ecological significance, can provide efficiencies and greater conservation benefits for sage-grouse.

Service areas should be defined early in the development of a compensatory mitigation program in collaboration with all land ownerships and management agencies. The service area is an important component for third-party mitigation providers, who need to evaluate the marketability of their credits. An appropriate mix of public and private lands for compensatory mitigation is essential to implement a landscape approach to mitigation of habitat that is so widely distributed and intermixed. If Service areas are delineated primarily on the basis of jurisdictional or policy considerations, they should be well-justified in terms of their benefits to sage-grouse.

3. SITE SELECTION, CONSERVATION ACTIONS AND MANAGEMENT

Compensatory mitigation may be established on private, public, or tribal lands with the first criteria that specific areas provide the greatest benefit and reduce the greatest threats to sage-grouse. Priority areas in which to place mitigation actions should be biologically based and will be integrated among private and public land ownerships. However, maintaining the same classification of land ownership between the impact and mitigation site (e.g. mitigating impacts to private land on other private land) may be important in preventing a long-term net loss in conservation to sage-grouse.

A mitigation program should require that all lands being used for compensatory mitigation comply with program goals and objectives for managing habitat for the continued use of sage-grouse for at least the life of the impacts that the mitigation actions intended to offset.

Minimum requirements for establishment and operation of mitigation areas include:

- A site-level mitigation agreement which defines the roles and responsibilities of the mitigation provider, the agencies, and any other parties, and provides an operational framework for development, implementation, monitoring, and compliance of the project;
- Real estate assurances that will protect the mitigation area for the designated duration, including restriction of incompatible uses;
- Financial assurances to fund establishment and management of the mitigation area for the designated duration; and
- A management plan that will provide for the habitat management, monitoring, and continued adaptive management of the mitigation area.

3. SITE SELECTION, CONSERVATION ACTIONS AND MANAGEMENT *(continued)*

Site-level agreements should include a description of the amount of mitigation (or credits) to be provided, including a brief explanation of the metric used for this determination, and a process for adaptive management that will address uncertainties, including new information and unforeseen or unregulated situations (e.g. weather, fire). Each agreement should identify discrete ecological and administrative performance standards to be met and possible contingencies and consequences for not meeting standards. Monitoring should be designed to validate the effectiveness of the mitigation, answer program questions, contribute to knowledge gaps, and provide data to inform adaptive management decisions.

Compensatory mitigation should target projects in areas providing the greatest benefit and reducing the greatest threats to sage-grouse given jurisdictional and other constraints. States and federal land management agencies have already undertaken considerable efforts to identify and map key habitats necessary to maintain redundant, representative, and resilient populations in the development of their state and federal management plans (i.e. PACs). Additional finer-scale planning efforts by states or federal land management agencies may be necessary to determine if other essential habitats exist, particularly for connectivity, range or population expansion, and flexibility in managing habitat changes that may result from climate change.

Site selection criteria should outline the types of sites that are ecologically suitable for providing the desired habitat conditions and functions. In determining the ecological suitability of the project site, the following factors should be considered, to the extent practicable:

- Physical characteristics of the site;
- Landscape-scale features such as habitat diversity, function, and connectivity;
- Juxtaposition of the compensatory mitigation site relative to other areas of suitable habitat and ecological features;
- Ecological and legal compatibility with adjacent land uses;
- Compatibility with existing conservation plans and assessments;
- Development trends;
- Anticipated land use changes;
- Habitat status and trends;
- The relative locations of the impact and compensation sites; and
- Local or regional goals for the protection or restoration of particular habitat types or functions.

It is essential that efforts to offset unavoidable impacts through compensatory mitigation target the highest priority conservation actions for a population (or at the PAC scale for larger populations) to be effective. The Service recommends following the broadly-identified project types and conservation measures identified in the COT Report, based on local conditions and threats. Measurement of outcomes should be achieved using standard methods that link to sage-grouse population size to improve consistency and efficiencies and demonstrate that actions provide the necessary level of conservation benefit.

At a site-level scale, the mitigation actions taken on a given site should measurably offset impacts (from another site) and programmatically provide a net benefit to sage-grouse at the population or PAC (for larger populations) scale. For example, marking fence line and removing invasive juniper may not adequately offset permanent, limiting-factor, habitat impacts. However, these actions, in combination with other actions, such as permanent protection and active management, may collectively provide a net benefit. Research and education, although very important to the conservation of sage-grouse, should not be considered for compensatory mitigation as they are not actions that replace actual impacts to the species.

4. ADDRESSING ADDITIONALITY

Actions proposed as compensatory mitigation, regardless of land ownership, should provide benefits additional to those that would be achieved if the mitigation actions had not taken place. The additional value may result from conservation benefits to sage-grouse associated with *restoration* or *enhancement* of habitat; management actions that protect, maintain or create habitat (e.g., fire protection measures, legal and financial site protections); other activities (e.g., reduction of threats from disease or predation); and most likely a combination of all three categories.

4a. Program and Regulatory Considerations

To achieve additionality, compensatory actions must comply with all applicable federal, state, and local laws and exceed all existing regulatory or policy obligations associated with the project site. Lands already designated for conservation purposes cannot be used as compensatory mitigation unless the proposed compensatory mitigation project would add additional conservation benefit above and beyond that attainable under the existing land designation. This includes public lands dedicated for conservation purposes; private lands enrolled in government programs that compensate landowners who permanently protect, restore, or create habitat for sage-grouse; or lands protected by a habitat management agreement with the Service or similar programs.

For example, because the Service is mission-committed to species conservation, compensatory mitigation on National Wildlife Refuges is unlikely to be considered additional. However, additionality may be possible on a BLM Area of Critical Environmental Concern (ACEC) if, for example, existing mineral rights are resolved in some manner, thus providing additionality by avoidance of future loss of sage-grouse habitat from the rights being executed. Private lands enrolled in short term sage-grouse related conservation agreements with public entities, such as the Service's Partners for Fish and Wildlife Program or USDA Natural Resources Conservation Service Sage Grouse Initiative (SGI), may be eligible as mitigation lands if additional conservation benefits are provided above and beyond the terms and conditions of the agreement.

4b. Public Funds

Except for projects where federal funding is specifically authorized to provide compensatory mitigation, federally-funded conservation projects undertaken for purposes other than mitigation will not be considered additional. However, compensatory mitigation credits may be generated by activities undertaken in conjunction with, but supplemental to, such programs in order to maximize the overall ecological benefits of the restoration or conservation project (e.g. SGI). Where federal funds have been used in the establishment of a mitigation area, the allocation of credits should be proportionate to the non-federal contribution. If SGI funds are used to fund sagebrush restoration for sage-grouse, a landowner may participate in a compensatory mitigation program once the financial term of the SGI conservation plan contract expires. However, as specified by the agency administering the program or the Service, these properties may not qualify for full mitigation credit compared to a property that was not enrolled in such a program.

4c. Ecological Considerations

Credit *stacking* occurs when there is more than one resource or credit type on spatially overlapping areas. Stacking of mitigation credits within a mitigation site is possible, but the stacked credits should not be used to provide mitigation for more than one environmental impact action. However, compensatory mitigation projects may be designed to holistically address requirements under multiple programs and authorities for the same action and may use stacked credits to accomplish this goal. For example, a single credit may satisfy compensatory mitigation needs of an impact site where habitat for mule deer and sage-grouse overlap. The processes for use and accounting of stacked credits should be transparent across the entities that regulate the credits.

To ensure ecological benefits are measurably additional, programs should identify when or if it is appropriate to trade impacts to one form of sage-grouse habitat for offsets to another form. For sage-grouse, while *in kind* mitigation for habitat types (e.g. an impact to nesting habitat offset with restoration of nesting habitat functions and values) is preferred, *out of kind* compensatory mitigation for sage-grouse habitat may be appropriate where priority recovery needs can be addressed (e.g. loss of wintering habitat may be offset with brood rearing habitat in areas where the latter is a limiting factor).

4. ADDRESSING ADDITIONALITY *(continued)*

4d. Baselines

In order to determine ecological uplift (for mitigation sites) and potential impacts (for development sites), pre-project *baselines* must be assessed. Pre-project baseline refers to the habitat and/or species population conditions at any given point in time against which conservation actions are measured to determine ecological gain or loss. Baseline conditions should be assessed and measured using the same methodology employed to predict future conditions during project planning stages and ultimately to verify project conditions and associated credits during periodic and final monitoring of mitigation sites. The Service strongly recommends that a consistent methodology also be applied to predict impacts to sage-grouse and sage-grouse habitat (*see* Determining Metrics). For mitigation sites, baseline measures should explicitly acknowledge the potential threat of anthropogenic and natural disturbance, as well as the overall landscape resiliency of the site. Baseline methods should be consistently employed across the area covered by the mitigation program, unless variation of conditions and available data justify differences.

The Service has not developed or endorsed any one specific methodology for determining baseline conditions. States and other management entities may find it useful to cooperatively develop, adapt, adopt, or align methods that can be consistently applied across larger landscapes. The methods that will be used for measuring these types of baselines should be determined as part of early mitigation program development. Consider including information about scale (e.g. plan-level, state level), vegetation base layers, existing disturbance layers, lek data, sage-grouse occupied habitat, etc.

4e. Candidate Conservation Agreements

Landowners enrolled in *Candidate Conservation Agreements* (CCAs) or *Candidate Conservation Agreement with Assurances* (CCAAs) can provide compensatory mitigation if the actions related to mitigation are additional to the minimum conservation measures required by the CCA/CCAA. In order to track conservation actions and ensure additionality, conservation measures and mitigation-related conservation actions should be independently accounted for and reported to each respective program. Actions managed in perpetuity through mitigation agreements would provide both additionality and durability to the conservation measures provided under often shorter term candidate agreements. The ability to fund additional conservation on individual CCA/CCAA properties through mitigation dollars could further guarantee implementation of positive conservation actions. By keeping open the ability for those in CCA/CCAAs to market their additional conservation uplift to others needing to offset unavoidable impacts, more landowners will be encouraged to enroll in candidate agreements now.

Providing a menu of conservation options for landowners and reducing risk and uncertainty in conservation actions by securing them under mitigation agreements may contribute to an overall positive conservation goal for a species that operates on a landscape scale and for which protection and management of existing habitat is key to its survival.

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5. DEMONSTRATING EFFECTIVENESS & DURABILITY

Effectiveness may be compromised when the benefits of compensatory mitigation either do not come to fruition or do not persist for the full duration that is required based on the impact that is intended to be offset. Effective actions or plans proposed as compensatory mitigation will demonstrate timeliness (i.e. achieve targeted biological conditions in a timeframe that benefits sage-grouse), biological effectiveness (i.e. ecological durability), and will be accompanied by durable site protections and financial assurances that secure and protect the conservation status of the mitigation site and credits for at least as long as associated impacts persist. In order to ensure that obligations for compensatory mitigation are durable, when a project requires compensatory mitigation, the regulating entity should include the compensatory mitigation requirement as one of the conditions in the project's permit or other required authorization.

5a. Duration

The length of time compensatory mitigation actions persist on and influence the landscape should meet or exceed the length of time that projected impacts will negatively affect sage-grouse. Duration includes the time extent of the direct, indirect, and cumulative effects of an impact as well as the time period for an impact site to be fully restored.

Because most impacts typically begin to occur in the early stages of projects (i.e., construction and initial operations), benefits of proposed mitigation actions should accrue before or as early in the life of the project as possible. When the success of compensatory mitigation is demonstrated prior to impacts occurring, ecological risk (due to uncertainty of implementation and time lag) is reduced. These benefits should be verified via standardized monitoring.

On the impact side, the effect to a species may vary widely based on the size, location, quality of habitat affected, temporal nature of the impact, and other factors. Impacts to the species may be generally separated into short term and permanent impacts. Short term impacts have a known conclusion date whereby the adverse effects to the species are removed and the result of the impact to the species has been completely remediated through natural or active restorative processes. Short term impacts should be predictable, justified by the current knowledge of the species and its habitat, and be concluded by documentation of the habitat functioning for the species at the same or greater level than before the impact.

Short term impacts are often mitigated through permanent compensation actions, either at the same or a reduced amount of permanent impacts (e.g. a short term impact may require 1 permanent credit as offset where the same impact that is permanent may require 5 credits to fully compensate). This is preferable to limited-term credits given the economies of scale gained from the longer term management and protections of permanent mitigation sites. Potential scenarios where limited-term credits may effectively be used as an offset include: 1) applying higher ratios for limited-term credits; 2) limiting use of limited-term credits within a service area or program to a small percentage of total credits available; 3) use of limited-term credits on restored habitats instead of preserved areas to reduce risk of net loss of intact existing habitat; 4) setting the duration of the offset to include the restoration period of the impacted site plus additional time to recover lost productivity; and 5) using only a portion of limited-term credits in a given area and permanently retiring the rest to address risk and uncertainty. In any situation, the rationale for development of temporary compensation should be biologically justified.

5b. Biological Effectiveness

Compensatory mitigation actions must have a high likelihood of success based on the biophysical setting. Actions should be supported by sound science. Actions that are unproven, especially those where time lags in providing conservation benefits are not adequately addressed, should not be prioritized for compensatory mitigation. However, such unproven actions can be encouraged without causing significant environmental risk by allowing a portion of credit to be released for implementation of actions, and holding back the majority of credit until defined and observable performance criteria related to habitat quality are achieved (*see* Credit Release).

Conservation actions are also more likely to be meaningful if they are aggregated. Compensatory mitigation areas are most effective if they are large enough so that they will, either in themselves or in conjunction with adjacent landscape conditions, provide the targeted biological benefits long term. Compensatory mitigation is not effective if it occurs in areas impacted by a development project (i.e. on-site), where future development is likely to occur, or in areas where benefits are likely to be reduced over time by incompatible land-uses and surrounding landscape edge effects. Applying credits from one area to multiple debit sources may provide more concentrated landscape level conservation benefits.

continued on pg 16

5. DEMONSTRATING EFFECTIVENESS & DURABILITY *(continued)*

5b. Biological Effectiveness *(continued)*

Potential credit associated with proposed restoration and enhancement activities should be evaluated on a given site in comparison with both pre-project baseline and projected future condition that would be expected in the absence of the proposed mitigation activity. *Preservation* projects should be evaluated, and credits proportionately assigned, according to the magnitude and likelihood of existing and future threats to the habitat and/or the value of that site to conservation of the species. Crediting for such avoided loss may be acceptable if it reduces primary threats, is discounted according to the likelihood of loss, and includes actions above and beyond closure to development (e.g. permanent conservation easement).

Preservation projects can help maintain the integrity of PACs, a key conservation objective in the COT Report.

5c. Durability — Site Protection

An ecologically sound compensatory mitigation plan offers limited value if the area may be affected by future disturbance. Durability can be reached with site protections (e.g., real estate-related designations and management plans) and financial protections (e.g., bonding for construction, endowment for management). The Service recognizes that durability is a relative concept and that certain land protection designations are more subject to modifications over time than others, therefore it is important that compensatory mitigation programs clearly define how durability will be addressed across various land ownership types.

A site protection (or real estate) instrument or agreement is a written description of the legal arrangements including ownership, management, and enforcement of any restrictions that will be used to ensure the protection of a compensatory mitigation site, whether the mitigation is placed on federal or nonfederal lands. Instruments most commonly used for this purpose include conservation easements, deed restrictions, transfer of title, multiparty agreements, contractual documents such as conservation land use agreements, and regulatory mechanisms governing management of federal lands such as federal land management plans. Where possible, a site protection instrument should designate an appropriate third party the right and resources to enforce site protections.

Lands with split estate ownership and laws and policies governing existing rights (e.g. mining laws) may prevent a particular site from meeting the durability test when durable land protection instruments (e.g. permanent conservation easements) cannot be applied. The Service recommends that the risk of using split estate properties be carefully considered in siting compensatory mitigation. Layering several site protection tools or using risk management tools such as pooled *reserve accounts* and *retired credits* can be used to bolster durability (*see* Reversals).

Written into any instrument or agreement and identified in the administrative and regulatory documents (e.g. Records of Decision) that enable the original mitigation should be provisions for alternative adequate mitigation if subsequent changes in management direction result in incompatible uses on the land. Site protection instruments should also have written agreement that provides for alternative and adequate mitigation should the site fail.

For any site protection instrument, the following information should be included:

1. Express reference to the mitigation program and its purpose to protect a compensatory mitigation site under federal, state, and/or local law;
2. Survey/legal description and identification of other property rights or interests;
3. Baseline description of conservation resources on the site, including any state or federally listed or imperiled species;
4. Third-party right of enforcement by the regulating agency (preferable);
5. Amendment and transfer notification requirements;
6. Any prohibited and acceptable uses;
7. Subordination clause requiring any preexisting easement, liens, or encumbrances to take second priority to the use of the property as a compensatory mitigation site; and
8. Any information required by applicable state or other laws (e.g., conservation easements).

5. DEMONSTRATING EFFECTIVENESS & DURABILITY *(continued)*

5d. Durability — Financial Protections

The mitigation program should require sufficient financial assurances connected to each compensatory mitigation project to ensure a high level of confidence that the compensatory mitigation will be successfully completed in accordance with applicable performance standards and for the full duration of the project's intended life. To demonstrate stability, adequate funding sources to provide for interim and long-term operation, management, monitoring, enforcement, documentation costs, and contingencies or remediation (if the project fails to meet performance standards) should be identified.

The amount of financing to deliver the mitigation is best determined by an appropriate cost-analysis for all elements of the mitigation, including acquisition, easement, restoration or enhancement, and long-term maintenance. Typical cost estimate components include land purchase price; taxes; site protection instrument; project planning; permits; construction activities; restoration materials; as built surveys; operation and maintenance costs; management, monitoring and reporting activities; reasonably foreseeable remedial actions; contingencies; and legal and administrative costs.

Examples of financial assurances include performance bonds, irrevocable trusts, escrow accounts, casualty insurance, letters of credit, endowments, and legislatively enacted dedicated funds for government-operated mitigation sites.

In cases where an alternative mechanism is available to ensure a high level of confidence that the compensatory mitigation will be provided and maintained (e.g. a formal, documented commitment from a government agency or public authority) financial assurances may not be necessary or may be reduced.

For any funding vehicle, proper portfolio management is critical to providing sufficient investment growth to keep pace with inflation. Overall success will be determined by establishing appropriate risk and return objectives, asset allocation guidelines and suitable investments for funding, and a framework for ongoing monitoring of investment performance. All funds should be held in dedicated accounts and managed based on agreed-to terms to assure that target ecological conditions will be attained and maintained as necessary. Public agencies are generally limited in their ability to protect long-term funds for being used for other purposes, thus the Service recommends any mitigation funds should be held by third parties.

Dedicated funds to maintain and monitor the conservation action will ensure transparency and maximize the potential to attain and maintain ecological durability. The Service recommends that the program specify the conditions under which financial assurances are to be released to any party including, as appropriate, linkage to achievement of performance standards, adaptive management, or compliance with special conditions.

6. DETERMINING METRICS & ACCOUNTING SYSTEMS

The methodologies, or metrics, used to determine the expected impacts of actions (debits) and the measures necessary to mitigate those impacts (credits) must be based on biological and/or habitat conditions and upon reliable, consistent, and repeatable methods and analysis resulting in a common "currency" between credits and debits. Ultimately, the metrics used must clearly tie back to species conservation.

A formal, consistent, rigorous but relatively simple methodology[4] to assess impacts should be used and applied to all land development activities that impact sage-grouse. The methodology should address direct impacts (habitat removal), indirect impacts and disturbance, potential significant cumulative effects, and ecological site conditions. Metrics that are comparable or the same across jurisdictional boundaries will allow for more biologically meaningful exchanges in a landscape context. Approaches such as distance-based disturbance bands, habitat weighting, and ecological potential are acceptable, especially in conjunction with defined thresholds of allowable impact in defined geographies.

Verification, monitoring, and adaptive management of metrics are important components of mitigation program accounting necessary to ensure success.

- *Verification* is the process(es) used to confirm that program rules have been followed and provides a standardized process for reporting and monitoring that is needed by agencies that oversee mitigation programs and must certify credits for sale or use. Complete, consistent, and accurate verification provides the public and credit buyers with evidence that the mitigation program is in compliance and delivering benefits.

- Monitoring of actions generating credits ensures practices are implemented and maintained and may be necessary throughout the life of the project, though frequency may vary based on the management needs of specific projects (e.g. restoration projects may require more frequent monitoring than preservation projects).

- To adaptively manage metrics, the program should establish clear thresholds to trigger future adjustments and include criteria and processes for making adjustments in a way that will not undermine existing credits or mitigation agreements.

A robust compensatory mitigation program will provide an accounting system[5] whereby credits and debits can be tracked. Registries developed for other environmental markets which function to issue, transact, and retire serialized credits represent current examples of robust accounting mechanisms. The accounting system should foster transparency, accountability, and credibility and facilitate the connections between compensatory mitigation providers at the lowest transaction costs.

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[4] Refer to *Measuring Up* document submitted to USDA for key considerations when developing robust metrics: http://willamettepartnership.org/measuring-up/Measuring%20Up%20w%20appendices%20final.pdf

[5] See Willamette Partnership's *General Crediting Protocol* for an example of an ecosystem credit accounting system.

7. MANAGING RISK

Predictions about effects and the effectiveness of compensatory mitigation measures carry varying degrees of risk and uncertainty. Programs should target mitigation measures that are expected to achieve a net gain for sage-grouse commensurate with the degree of risk and uncertainty associated with predicted effects. Increasing uncertainty of impacts from climate change means we need new approaches to assess multiple future scenarios, resilience of mitigation plans, to provide for adaptive management, and to ensure risk is properly managed. Overall, reducing uncertainty within a mitigation program increases regulatory predictability. The following risk management tools, in conjunction with site and financial protections, should be considered in a mitigation program.

7a. Adaptive Management

Adaptive management is an iterative approach to decision-making, providing the opportunity to adjust decision in light of learning with an overarching goal of reducing uncertainty over time. Incorporating adaptive management strategies into mitigation area management plans can help to manage risk and uncertainty for any type of mitigation area. Adaptive management processes require establishment of management benchmarks to ensure progress towards goals, protocols to monitor progress related to these benchmarks, and the resources and ability to make adjustments as needed to ensure mitigation objectives are achieved. The adaptive management plan should include triggers for identifying when corrective actions should be taken.

7b. Credit Release

One way to manage risk and uncertainty is by creating release schedules that only allow use of mitigation actions when specific success criteria are met. Success criteria should be designed to identify when risk and uncertainty have been substantially reduced. For third party mitigation sites, the Service recommends providing phased credit releases based on both ecological and administrative performance. A legally binding credit agreement should be in place between any party generating credits and the program administrator. The mitigation agreement should provide a schedule for credit releases as appropriate milestones are achieved. Failure to meet these milestones should result in suspension of credit release to ensure compliance.

Administrative criteria which may allow for initial credit release could include: site agreement and management plan have been approved, the site has been secured with an appropriate real estate instrument, and appropriate financial assurances have been established. Subsequent credits can be released for meeting ecological milestones (as determined through site monitoring) and financial milestones (e.g. endowments partially funded by portions of each credit sale). The credit release schedule should reserve a significant share of the total credits for release only after full achievement of performance standards.

7c. Ratios

Mitigation ratios (trading ratios, multipliers, proximity factors) may be used to address uncertainty or implement policy decisions to ensure net gain. Ratios can enable offset transactions to achieve net benefit for the species by ensuring the credit acquired is functionally greater than the debit.

Ratios may be determined based on several factors including temporal considerations (impact versus mitigation timing), functional quality and importance of proposed impacted areas, projected functional quality of proposed mitigation areas, likelihood of restoration success, degree of threat to proposed preservation areas, durability, etc.

However, we must be cautious in the over-use of ratios to make up for limited understanding of sage-grouse habitat restoration and our inability to accurately measure and compare the value of habitat types. Ratios should be reserved for dealing with the true uncertainty of any mitigation program and also for policy-based incentives (e.g. increasing trading ratios for acquiring credits outside an impact's service area). Any mitigation ratio used must be based on sound biological rationale that is easily explained, readily understood, and consistently applied. Documentation and justification for ratio values is important.

EXAMPLE

Multipliers can be built in to the debiting or crediting side of the metrics to create incentives for avoidance of impacts or preservation of habitat in high priority areas. Reserve ratios or retirement ratios can be used to set aside credits for unexpected events or to permanently retire a proportion of credits, never to be used as offsets, to insure net gain.

7. MANAGING RISK *(continued)*

7d. Reversals

Reversals may be caused by natural disturbances (unintentional reversal, such as wildfire) or anthropogenic disturbances (intentional reversal, such as development) which shorten the intended duration of compensatory mitigation. For intentional reversals, the Service recommends compensation by the party responsible for the reversal. To address this issue up front, the Service recommends establishing policies such that intentional reversals are prohibited to the extent possible, and the conservation benefits from a compensatory mitigation project are not diminished due to replacements made necessary by unforeseen intentional reversals.

Requiring the credit provider to be responsible for reversals outside of their control would likely make administration of a program more complex and decrease interest in providing credits. One recommended approach to address unintentional reversals is to establish insurance or a *reserve pool* where the amount of funding each site contributes to the pool is directly related to the amount of risk (e.g. from fire) of the site not providing habitat in the future.

Reserve pools can be established several ways, including:

- The compensatory mitigation program administrator requires that each individual mitigation provider sets aside a percentage of credits in reserve, never to be sold. In the event of an unintentional reversal, the administrator could draw from the pool of credits to make up for the lost conservation.
- An insurance premium, based on the number of credits sought and the likelihood of unintentional reversal (i.e. a natural disturbance that may lead to loss of habitat function), is added to the cost of compensatory mitigation for the debits requested. The insurance premium would then be used to generate additional compensatory mitigation projects that generate credits for the insurance pool. In the event of an unintentional reversal that generates unintentional debits, the compensatory mitigation program administrator would draw down credits from the pool to offset the debits.

CONCLUSION

The Service's primary goal for any sage-grouse compensatory mitigation program is to support conservation of the species by working with others in managing threats, protecting populations, and reversing declines. Implementation of robust and transparent compensatory mitigation programs and processes could contribute to reducing the need to list the species or simplify the effects of a listing and allow for well-sited actions that participate in the mitigation program to move forward smoothly. This will take a collaborative, unified approach between all stakeholders.

If we are able to work together on landscape-scale mitigation strategies for sage-grouse, we anticipate many benefits to accrue, including a streamlined permit process, increased public transparency and confidence, increased economic incentives and opportunities for landowners, and legal and scientific defensibility for actions taken under such strategies. Most importantly, we can reduce threats to the species in a manner consistent with the socio-economic needs of the local communities and states where sage- grouse occur.

APPENDIX I
Glossary

NOTE

The Service does not have formal definitions for a majority of these terms. Definitions were derived from existing policy and guidance where available but modified for the purposes of this document.

Additionality – A property of compensatory mitigation where the conservation outcomes are demonstrably above and beyond results that would have occurred if the mitigation had not taken place.

Baseline – the pre-existing condition of a defined area that can be quantified by an appropriate metric or metrics to determine level of function or value and re-measured at a later time to determine if the same area has increased, decreased, or maintained the same level of function or value.

Candidate Conservation Agreement (CCA) – a formal agreement between the Service and one or more federal or non-federal parties to address the conservation needs of proposed or candidate species, or species likely to become candidates for listing under the ESA, in which participants voluntarily commit to implementing specific actions that will help remove or reduce the threats to these species.

Candidate Conservation Agreement with Assurances (CCAA) – a formal agreement between the Service and one or more non-federal parties who voluntarily agree to manage their lands or waters to remove threats to candidate or proposed species and in exchange receive assurances that their conservation efforts will not result in future regulatory obligations in excess of those they agreed to at the time they entered into the agreement.

Compensatory Mitigation (Offset) – the preservation, enhancement, restoration and/or establishment of a resource to compensate for or offset unavoidable adverse impacts to the resource elsewhere.

Conservation Bank – a site or suite of sites established under a Conservation Bank Agreement that provides ecological functions and services expressed as credits that are conserved and managed in perpetuity for specified evaluation species and used to offset impacts occurring elsewhere to the same evaluation species. The establishment, operation, and use of a conservation bank require a conservation bank agreement between the Service and the bank sponsor (USFWS 2003 Conservation Banking Guidance). Ensuring that the required compensatory mitigation activities are completed and successful is the responsibility of the bank sponsor. The permittee transfers their liability for success of the mitigation to the bank sponsor through the transfer of credits. Conservation banks generally provide mitigation in advance of impacts.

Conservation Bank Agreement (CBA) – the legal document for the establishment, operation and use of a conservation bank. At a minimum, the Service and a bank sponsor (the individual or entity in charge of establishment and operation of a conservation bank) enter in to a CBA. This document may also be referred to as a Mitigation Bank Instrument (MBI), Conservation Bank Instrument (CBI), Conservation Bank Enabling Instrument (CBEI), or Bank Enabling Instrument (BEI).

Conservation Objectives Team (COT, COT Report) – a February 2013 report prepared by Service and state wildlife agencies. The COT Report identifies PACs, discusses principle threats to greater sage-grouse, and provides objectives, measures and options to ameliorate these threats.

Credit – a defined unit of trade representing the accrual or attainment of functions or value at a compensatory mitigation site. For example, a credit may be expressed as a measure of surface area (e.g., an acre or hectare), linear distance, number of individuals, stage of maturity of a particular habitat type, or other appropriate metric that can be consistently quantified and traded.

Debit – a defined unit of trade representing the loss of resource functions or value at an impact or project site. The unit of measure should be the same as that for a credit within a specific mitigation system.

APPENDIX I
Glossary

Durability – ability for mitigation measures to be effective at least as long as the impacts those measures are designed to offset. Durability is often addressed through legal, financial, and management mechanisms.

Effectiveness – Effective actions or plans proposed as compensatory mitigation demonstrate timeliness, ecological durability, and are accompanied by durable site protections and financial assurances that secure and protect the conservation status of the mitigation site and credits for at least as long as associated impacts persist.

Enhancement – manipulation of existing habitat to heighten, intensify, or improve a specific resource function(s). Enhancement results in a gain of selected resource function(s).

Habitat Credit Trading Systems (Habitat Credit Exchange) – A market-based system that facilitates the exchange between interested parties of credits that represent habitat that has been restored, enhanced, established, preserved or otherwise conserved for the purpose of offsetting losses of at-risk species habitat, habitat function, or habitat value elsewhere with the goal of achieving net species conservation benefits.

Incidental Take – take of listed species that results from, but is not the purpose of, carrying out an otherwise lawful activity. Incidental take is prohibited under the ESA and its implementing regulations, but may be authorized pursuant to section 7 or 10 of the ESA.

In Kind – (for sage-grouse) habitat of a similar structural and functional type to the habitat impacted.

In-lieu Fee – a site established as part of an in-lieu fee program that provides ecological functions and services expressed as credits that are conserved and managed for specific species and are used to offset impacts occurring elsewhere to the same species. In-lieu fee programs are sponsored by government agencies or environmental not-for-profit organizations that collect funds that are used to establish in-lieu fee sites. The establishment, operation, and use of an in-lieu fee program requires an agreement between the regulating agency and the in-lieu fee sponsor. Responsibility for ensuring that the required compensatory mitigation activities are completed and successful is transferred from the permittee to the in-lieu fee program sponsor through the transfer of credits.

Landscape-scale – for the purposes of this document, a landscape is defined as a large area encompassing an interacting mosaic of ecosystems and human systems that is characterized by a set of common management concerns.

Mitigation Ratio – typically, the relationship between compensatory offset for, and impacts to, individuals of species or habitat for species. Ratios (trading ratios, multipliers, proximity factors) may be used to address uncertainty or implement policy decisions.

Net Conservation Gain – the actual benefit or gain above baseline conditions, after deductions for impacts, in habitat function or value to species covered by a mitigation program.

No Net Loss – impacts caused by the project are balanced or outweighed by measures taken to avoid and minimize the project's impacts and compensate any residual impacts so that no loss remains.

Off-Site – an area that is neither located on the same parcel of land as the impact site, nor on a parcel of land contiguous to the parcel containing the impact site.

Out of Kind – (for sage-grouse) habitat of a different structural and functional type from the impacted habitat.

Performance Standards – observable or measurable administrative or ecological (physical, chemical, or biological) attributes that are used to determine if a compensatory mitigation project meets the agreed upon objectives.

APPENDIX I
Glossary

Permittee Responsible Mitigation – a mitigation site that provides ecological functions and services established as part of the conservation measures associated with a permittee' s action. The permittee retains responsibility for ensuring that the required compensatory mitigation activities are completed and successful. Each permittee-responsible mitigation site is linked to the specific activity that required the offset. Permittee-responsible mitigation approved for a specific action is not transferable and cannot be used for other mitigation needs.

Prelisting Mitigation – (in this document) conservation measures benefitting a non-federally listed species that are recognized in a Service prelisting mitigation agreement and undertaken prior to the determination that the species to be benefited is a federally endangered or threatened species.

Preservation – maintenance or retention of existing habitat with specific resource function(s) for a species. This term usually implies legal protection of existing and functioning habitat, for example a parcel of land protected under a conservation easement.

Priority Areas for Conservation (PACs) – key areas that states have identified as crucial to ensure adequate representation, redundancy, and resiliency for conservation of its associated population or populations of greater sage-grouse. PACs are identified in the COT Report.

Program Administrator – The entity with enforcing authority for the establishment, operation, and management of a mitigation program.

Reserve Account (Reserve Pool) – a pool of issued credits, managed by the program administrator, intended to cover risks from intentional or unintentional reversals on mitigation sites.

Restoration – returning a site to its natural/historic habitat type with the same or similar functions.

Retired Credits (Retirement Ratio) – proportion of credits set aside and not ever to be used as compensatory mitigation.

Reversal – compensatory mitigation that does not persist for the full duration due to unplanned circumstances, whether through natural or man-made intentional or unintentional causes.

Service Area – the geographic area within which impacts to a species' habitat can be offset at a particular habitat offset site as designated in an agreement or program; specific to third party mitigation, the geographic area within which habitat credit trading occurs.

Split Estate – surface rights and subsurface rights (such as the rights to develop minerals) for a piece of land are owned by different parties.

Stacking (Credit Stacking) – generating multiple mitigation credit types on the same parcel of land.

Verification – process(es) used to confirm that mitigation program rules have been followed. Verification provides a standardized process for reporting and monitoring.

APPENDIX II
Questions Guide

NOTE

These questions, in conjunction with the principles, standards, and program elements outlined in the Framework, are intended to guide development of individual sage-grouse mitigation programs.

I. MITIGATION PROGRAM GOALS AND OBJECTIVES

1. How does the mitigation program aim to avoid impacts to sage-grouse and achieve a net conservation gain by mitigating for unavoidable impacts to sage-grouse across all habitats? At what scale(s) will this be measured?
2. How does the mitigation program address equitability (i.e. how will the mitigation hierarchy be applied across impact types and land ownerships in an equitable manner)?
3. What are other basic objectives of the program (e.g. implementable regardless of listing, cover other resources)?

II. COVERED ACTIVITIES

1. How are sage-grouse habitat classifications defined for the covered area (e.g., core, low density, occupied habitat, seasonal)?
2. Will any sage-grouse habitat type not be included in the mitigation program (and why)?
3. How will the program account for non-surveyed or unclassified habitats?
4. Will any other regulated resources be covered by the program (e.g. big game winter range, Bald and Golden Eagle Act, wetlands/Clean Water Act, etc.)?
5. What types of development activities will be covered?
6. What existing regulatory mechanisms relate to covered activities, and which entities provide this overview (e.g. permit requirements)?
7. Which development activities have been identified as threats to sage-grouse (e.g. *see* 2013 COT Report)?
8. How much demand for compensatory mitigation are development activities expected to create?
9. Does there need to be a process to include other development activities in the future?

III. MITIGATION PROGRAM GOVERNANCE

1. Is the program a stand-alone local or state-managed effort, or a jointly managed effort between state, federal, tribal and/or other agencies?
2. Who is in charge of administering different parts of the mitigation program?
3. What mechanism (agreement, legislation, etc.) identifies the responsible parties for managing the mitigation program?
4. How are relationships among different agencies and stakeholders managed?
5. How will the program operations be funded?
6. What compensatory mitigation transaction models will be supported (e.g. conservation banking, permittee-sponsored mitigation, credit exchange, in-lieu fee)?
7. How will any compensatory mitigation funds be managed and by whom?
8. What trigger points can be identified that would indicate that changes to the program are needed and how will changes be implemented?

APPENDIX II
Questions Guide

9. Is the mitigation program transparent and does it inform participants of the potential for information to be publicly disclosed by participation in these programs"?
10. How will information on impacts, offsets, and any credit trading be tracked?
11. How are the results reported to the Service or others?
12. Will the Service play a role in any part of the program (development, review, etc.)?
13. Will prelisting mitigation (for potential use in a post-listing scenario) be part of the program and if so, what will the agreement with the Service look like?
14. How will the program provide for coordination across jurisdictions (including across states)?

IV. MITIGATION HIERARCHY

A. Avoiding Impacts

1. What triggers review and entry into the mitigation hierarchy process?
2. Are there any avoidance or exclusion areas (e.g. NSO, lek buffers, etc.)?
3. What measures are used to determine if habitat is avoided? How are direct and indirect impact measures included?
4. What criteria or regulatory mechanisms are used to emphasize, require, and/or enforce avoidance? Specifically, what compliance measures are in place to ensure avoidance (e.g. permit denial)?
5. Is there a cap on disturbance, and at what scale and in which sage-grouse habitat types does it apply? Does it include direct and indirect impacts? What are the data source and methods used to measure avoidance?

B. Minimizing Impacts

1. Under what circumstances will minimization measures be employed?
2. What practices can developers use to minimize impacts?
3. What criteria or regulatory mechanisms are used to require and/or enforce minimization? Specifically, what compliance measures are in place to ensure impacts are minimized (e.g. permit denial)?
4. How are minimization measures monitored and are there triggers for adaptive management?

C. Rectifying Impacts

1. Is there an identified timeframe that rectification must occur?
2. How will the time lag between impact and rectification be offset?
3. What baseline will be used to determine whether rectification has occurred?
4. How are rectification measures monitored?
5. If rectification measures are not adequate who enforces compliance?
6. Who verifies that rectification is complete and adequate?

APPENDIX II
Questions Guide

D. Compensating (Offsetting) for Unavoidable, Residual Impacts

a) Impact (Debit) Assessment

1. How should impacts generally be measured, in other words, what constitutes a "debit" (e.g. functional acres, acres, number of birds)?
2. Will habitat measures take in to account rarity, vulnerability, or conservation priority?
3. Will impact assessments take in to account duration (i.e. temporary versus permanent impacts)?
4. From what baseline will impacts be calculated (e.g. current condition)?
5. How will the impact assessment method address direct impacts, indirect impacts, and cumulative effects?
6. Who can measure impacts? Will these calculations be verified?

b) Offset (Credit) Assessment

1. How should offsets generally be measured, in other words, what constitutes a "credit" (e.g. functional acres, acres, number of birds)?
2. From what baseline will offsets be calculated? In other words, are credits awarded on the difference between current and future condition (emphasizes enhancement and restoration), or just on future condition (emphasizes preservation), or on future condition with a minimum enhancement requirement?
3. How will risk and uncertainty of restoration and management factor into offset calculations?
4. How will duration of impacts (e.g. temporary versus permanent) factor into offset calculations?
5. Who can measure offsets? Will these calculations be verified and by whom?

c) Impact to Offset (Debit or Credit) Relationship

1. Will the quantification methods (metrics) for debits and credits be the same? If not, why?
2. How will the outcomes of the debit and credit metrics combine into a credit quantity to ensure that impacts are offset such that there is a net gain to sage-grouse (e.g. via ratios, multipliers)?
3. How will the timing of mitigation implementation (e.g. in advance of, concurrent with, or subsequent to impacts) factor into offset calculations (e.g. with ratios, caps on actions that result in time lags in critical areas, etc.)?
4. Under what circumstances would demonstration of functional mitigation in advance of impacts be required?
5. What criteria will be used to determine when in-kind or out-of-kind mitigation for habitat types (e.g. brood rearing, wintering, and nesting) is more appropriate?
6. What process is in place to adaptively manage the metrics?
7. What process is in place to approve new metrics?
8. How are service areas defined?
9. Will there be a mechanism to allow for trades to occur outside of service areas?
10. What mechanisms are in place to provide for or use credit available in other programs or states?

APPENDIX II
Questions Guide

d) Criteria for Compensatory Mitigation (Offset) Projects

1. What criteria are used for locating and prioritizing sites for compensatory mitigation?
2. Is there a preference for compensatory mitigation on a particular land ownership type (e.g. public, private) and why?
3. What pre-conditions must a site meet before being able to provide mitigation credits?
4. Will there be a minimum number of credits or site functionality before any credits are released?
5. How do other agreements (e.g. CCA, CCAA, SGI) affect eligibility to sell credits?
6. What constitutes on-site versus off-site mitigation, and when, if ever, is on-site mitigation preferred?
7. Does less than permanent protection count? If yes, how and why?
8. What is the process when impacts are proposed near or on compensatory mitigation sites?
9. Is credit provided for avoided loss? Under what circumstances?
10. What constitutes additionality (e.g., above and beyond legal requirements, above business as usual, etc.)? Does this differ by land ownership and if so, why?
11. What are the mechanisms for ensuring durability of protection on various land ownership types? How are split estates handled?
12. What conservation types (e.g., preservation, enhancement action, etc.?) and actions (e.g. juniper removal, fence marking) can generate credits?
13. How will preservation or restoration effect timing of the release of credits? Are credits released up front or based on administrative or ecological performance standards?
14. Who verifies credits (e.g., permitting agencies, third parties, etc.)?
15. Who approves the final mitigation agreement for a site and certifies release of credits?
16. How do you ensure that the credits represent the right conservation in the right locations?
17. What role, if any, can public funds or restricted conservation dollars play in mitigation (e.g., Farm Bill dollars)?
18. Can other resources be stacked on sage-grouse mitigation sites (e.g. carbon, wetlands)?
19. How will ongoing stewardship be ensured (e.g., proof of endowment or maintenance funds, when funds should be set aside, designation of a steward, qualifications of a steward)?
20. For each eligible conservation practice, what criteria will make sure it is implemented and maintained correctly?
21. What performance standards and monitoring techniques/durations will be applied at mitigation sites? Will there be standardized defaults, or will everything be site-specific?
22. What happens if performance standards are not being met either because of force majeure or things within a credit developer's control? Specifically, how will wild fire be addressed?
23. What content needs to be in the monitoring reports and how often and to who are they submitted?
24. What constitutes success? Does it include presence of the species?