

Assessing Compensatory Mitigation Options for Greater Sage-Grouse Conservation

Report prepared by Olivia Pearman (MEM '16) and Rachel Plawecki (MF '15) under the supervision and guidance of Len Barson and Jessica Wilkinson of The Nature Conservancy.

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EXECUTIVE SUMMARY

This report presents the results of a semester-long research project undertaken by Yale School of Forestry & Environmental Studies graduate students Olivia Pearman and Rachel Plawecki. The project was developed and carried out under the supervision and guidance of Len Barson and Jessica Wilkinson at The Nature Conservancy. Our research sought to: evaluate current and proposed compensatory mitigation options for the Greater Sage-Grouse (GSG), assess the scope of industry demand for GSG compensatory mitigation options, recommend how compensatory mitigation programs should be structured, and offer areas for future investigation.

Methodology

1. *Program Matrix*: First we created a matrix to assess the ability of different compensatory mitigation options to meet a high standard for conservation. We ranked program types from 1-5 according to seven criteria: additionality, durability, siting, scientific defensibility, metrics and methodology, stakeholder participation, and adaptive management. Each program was thus assigned an overall score with the maximum being 35.

2. *Stakeholder Interviews*: We conducted 27 interviews over the course of four weeks with 28 professionals in government, conservation NGOs, and the energy industry working on sage-grouse issues. The responses were then coded in Excel and analyzed for common themes.

Research Results

1. *Program Matrix*: According to our ranking system, banks are best suited to meet a high standard for compensatory mitigation, followed by habitat credit exchanges, in-lieu fee programs, and then permittee-responsible mitigation.

2. *Stakeholder Interviews: Industry Demand and Program Structure*

Industry Demand: There is interest from industry in having compensatory mitigation options available; however, demand for actually securing credits is low. Given that the GSG is currently a candidate species, current demand is contingent upon the following factors:

- Expectation of regulations and/or requirements for compensatory mitigation (Bureau of Land Management Resource Management Plans, state plans, US Fish and Wildlife Service regulations as a result of a listing)
- Existence of compensatory mitigation options with favorable characteristics (primarily cost certainty and regulatory assurance that credits will be recognized post-listing)
- Clear understanding of what is required (i.e. what counts as impacts that require compensatory mitigation and what counts toward fulfilling those requirements)

We found that industry tends to prefer in-lieu fee type programs over other mechanisms due to their ease of use, cost certainty, and transfer of liability to the entity administering the program (i.e. regulatory assurance that they have sufficiently fulfilled requirements).

Structuring Programs: Although we found that the USFWS tends to prefer banks to in-lieu fees and that industry tends to prefer the opposite, we emphasize that the components of a

program are more important than the mechanism itself. The USFWS, other government entities, and NGO organizations prefer compensatory mitigation options that meet the USFWS standards, and industry prefers any compensatory mitigation option that is easy to use, not too costly, transparent, and transfers liability. Therefore, we recommend that the following program components to be incorporated into any compensatory mitigation program that is developed:

1. Uses consistent, transparent, and simple crediting methodology;
2. Directs compensatory mitigation projects to areas of highest priority habitat where restoration/enhancement can have the most impact for least cost; and
3. Continuously engages all stakeholders in meaningful dialogue.

Our Recommendations for Moving Forward

Based on the above results, we recommend the following in continuing the efforts for developing compensatory mitigation options for the GSG:

1. Keep the conversation going: Industry wants to be included as part of program development.
2. Don't underestimate the power of policy drivers: Without established regulations and/or requirements, uncertainty around what will be mandated for compensatory mitigation can be a limiting factor for demand.
3. Set consistent standards, metrics, and policies: To function appropriately, compensatory mitigation options need to operate on a level playing field while still taking into account contextual differences across states.
4. Emphasize characteristics of design and implementation over exact mechanisms: While preferences for mechanisms were expressed by different groups, government, NGOs, and industry can find common ground by focusing on the three aforementioned program components to reach a solution amenable to all parties.

Areas for Future Research

Our research led us to many other questions that are important when considering the development of compensatory mitigation mechanisms for GSG. These include:

1. What are the implications of using private lands to compensate for impacts on public lands?
2. What is the supply of land for compensatory mitigation?
3. Should compensatory mitigation programs be designed to incentivize avoidance?
4. How can we establish a level playing field for a suite of mitigation programs?
5. How do discrepancies among states factor into mitigation strategies for the GSG?

Key Conclusions

- Program components are more important than specific mechanisms.
- Development and use of well-designed crediting methodology, mitigation focus on high priority areas, and stakeholder collaboration are the most agreed-upon program components
- Demand for credits is based on expected regulations/requirements, cost considerations, and characteristics of available options.
- Banks should play the largest role in compensatory mitigation for sage-grouse, with in-lieu fees and habitat credit exchanges filling in gaps across the sage-grouse range.

I. INTRODUCTION

As of the date of this report, the Greater Sage-Grouse (GSG) is a candidate species for listing under the Endangered Species Act (ESA). While a listing decision will occur in September of this year, many organizations are mobilizing to provide for compensatory mitigation mechanisms for unavoidable impacts that may occur as a result of surface disturbing activities, including development and energy extraction projects. Whether or not the GSG is listed, it is expected that the Bureau of Land Management (BLM) will require compensatory mitigation action through Resource Management Plans for impacts that occur on their lands. Some states are also beginning to consider developing plans that will require compensatory mitigation as well. The potential for compensatory mitigation requirements and the desire to continue operations has spurred interest by at least some portion of industry to consider buying credits as well as conservation organizations to develop programs that may generate credits.

In this report, we examine the demand by the energy industry for compensatory mitigation credits, compare and contrast compensatory mitigation mechanisms, and examine what program components of a compensatory mitigation mechanism are desired by industry, the US Fish and Wildlife Service (USFWS), the Bureau of Land Management (BLM), state agencies, conservation organizations, and other interested parties. We have found that industry demand for compensatory mitigation credits for the Greater Sage-Grouse exists but is contingent on regulatory drivers, such as a listing, state requirements, or BLM requirements. Essentially, industry is waiting for these requirements to emerge so that they will have greater predictability about what will be required of them. We also illustrate how different compensatory mitigation programs compare to one another according to our own evaluation and the evaluations of our interviewees. We provide a list of program components we believe are vital to any program's success including: a consistent, transparent, simple, and scientifically sound crediting methodology, mitigation focus on the high priority habitat, and stakeholder engagement in design and implementation of programs.

The report is laid out in seven sections:

- I. We first provide a background on the project and a description of the project scope.
- II. Next we explain our methodology in conducting 1) an analysis of approved and potential programs for GSG based on criteria we developed from the USFWS mitigation framework and other sources; and 2) stakeholder interviews with industry representatives, government officials, and other interested parties (mostly conservation NGO representatives).
- III. We then provide our results from the two exercises listed above in Section II.
- IV. We then discuss our results, responding to the questions of the scope and nature of demand by industry for compensatory mitigation options and the preferred or suggested program structure of such options.
- V. Next we lay out some areas for future research that would be important to explore in the development of compensatory mitigation mechanisms.
- VI. We then provide our recommendations for compensatory mitigation for Greater Sage-Grouse conservation.
- VII. Finally, we summarize our key conclusions or takeaways from this research.

PROJECT BACKGROUND

The US Fish and Wildlife Service recently issued its Greater Sage-Grouse Range-Wide Mitigation Framework. This document recommends an avoidance and minimization first strategy for identified sage-grouse habitat, particularly for areas identified as important to sage-grouse populations. The framework asserts that compensatory mitigation should be provided for any unavoidable impacts occurring to sage-grouse habitat and that compensatory programs should be strategically designed to result in a “net overall positive outcome” for sage-grouse.

The majority of Greater Sage-Grouse populations are found on public land, and primarily on lands administered by the Bureau of Land Management (BLM). The BLM and US Forest Service (USFS) have initiated a process to update the land use plans for the lands they manage in sage-grouse territory with the goal of incorporating sage-grouse conservation measures into the plans. Key to the success of these revised land use plans will be the adoption of the mitigation hierarchy and the development and implementation of compensatory mitigation options for impacts to priority sage-grouse habitat from, among other things, energy development. Extraction of oil and gas resources on BLM and USFS-administered lands could be significantly affected by these measures, potentially impacting thousands of extant and future land leases, especially in Colorado, the Dakotas, Montana, Utah, and Wyoming.

To date, the energy industry has signaled little interest in proactively conserving sage-grouse habitat in an effort to preclude listing. However, few if any compensatory mitigation options have been made available to industry. Moreover, there have been no studies of whether the use of compensatory mitigation mechanisms, such as banks, or candidate conservation agreements in this area would be useful tools to support the species’ recovery and support the ability of industry to comply more easily with mitigation requirements in a manner that will allow efficient and predictable decision-making. Some recent experience with conservation banks for sage-grouse and Lesser prairie chicken (listed as Threatened) offers some hope, but these efforts are new and the concept still largely untested.

Throughout the duration of this project, several important developments took place in the compensatory mitigation arena for sage-grouse. These include BLM-FWS approval of the Sweetwater River Conservancy Conservation Bank and the Barrick Nevada Sage-Grouse Bank Enabling Agreement. Our research identified the following compensatory programs proposed or underway as of the date of this report for Greater Sage-Grouse habitat:

Program	Location	Status
Sweetwater River Conservancy Conservation Bank	Wyoming	Approved by USFWS on March 18, 2015
Barrick Nevada Sage-Grouse Bank Enabling Agreement	Nevada	Approved by USFWS on March 25, 2015
Colorado Habitat Exchange	Colorado	Under review by USFWS
State of Nevada Conservation Credit System	Nevada	According to website ¹ , open for credit enrollment; Not approved by USFWS
Wyoming Conservation Exchange	Wyoming	Under review by USFWS; Pilot proposed
unnamed compensatory mitigation program	Oregon	In development
unnamed compensatory mitigation program	Montana	In development; SB 261 (2015), creating program, close to enactment into law

Table 1. Current Compensatory Mitigation Projects and Programs Proposed or Underway for Greater Sage-Grouse

PROJECT SCOPE

Problem Statement: Is there demand for compensatory mitigation for the Greater Sage-Grouse and, if so, how can that demand best be met in a manner that supports recovery of the species?

Given the current status of the Greater Sage-Grouse as a candidate species for listing under the ESA, The Nature Conservancy (TNC) seeks to understand what role compensatory mitigation mechanisms, and specifically mitigation banking, can play in conserving the species. In this project we begin to address this question by investigating whether and how much demand there is by the energy industry operating in the sage-grouse range for mitigation banking, as well as whether and how that demand is currently being met. We also seek to determine what is driving industry demand and what assurances or features of a program would incentivize industry participation. Additionally, we address the question of what programs or program

¹ State of Nevada Conservation Credit System website.
<https://www.enviroaccounting.com/NVCreditSystem/Program/Home>

components meet a high standard for compensatory mitigation and how amenable the USFWS is to various types of mitigation programs.

Secondary questions of this project include 1) how discrepancies among state level initiatives factor into sage-grouse conservation; and 2) what role various parties (agencies, nonprofits, and the private sector) could play to support the establishment of compensatory mitigation programs for sage-grouse. We do not address the supply questions associated with this field, such as 1) whether there is an available supply of land ready for enrollment in compensatory mitigation programs; or 2) the extent of the demand for credits by private landowners (large and small).

II. METHODOLOGY

PART 1: CREATING A PROGRAM MATRIX

The first part of this project involved creating a matrix to assess various compensatory mitigation options' abilities to meet a high standard for conservation. We specified seven criteria drawn primarily from the USFWS Greater Sage-Grouse Range-Wide Mitigation Framework² compensatory mitigation standards as well as the Business and Biodiversity Offsets Programme's (BBOP) Standards on Biodiversity Offsets³. After establishing this set of criteria we reviewed specific compensatory mitigation programs (the Sweetwater Conservation Bank, the Barrick Enabling Agreement, and the Lesser prairie chicken (LPC) range-wide program as well as more generally reviewing banks, in-lieu fee, permittee-responsible, and habitat credit exchanges. We reviewed publicly available program-specific documents and reports by public agencies and academia that define program types more generally. Each of these programs was then given a score (from 1 to 5) according to how well they fit each criterion. A score of one means the program does not fit the criterion well; a score of three indicates uncertainty about whether the program or program type could fit the criterion; a score of four indicates they mostly fit the criterion but at least one element of it is missing; and a score of five indicates they fit every element of the criterion. Then scores were then added to arrive at a final score (for a total of 35 possible points) for each program indicating how well they compare to the standards and to each other based on these criteria. Specific programs that have been approved by the USFWS received a higher score since they had to meet USFWS standards in order to be approved. General types of programs received lower scores since there is always uncertainty as to whether any program of any type will or will not meet standards.

This method of assessing specific programs and program types provides a way of comparing them in an empirical, albeit still subjective way. It is important to note that our rankings do not indicate a full, comprehensive review of programs and program types, as this would be beyond

² US Fish and Wildlife Service. (2014). Greater Sage-Grouse Range-Wide Mitigation Framework. Washington, D.C. http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSR%20RangeWide_Mitigation_Framework20140903.pdf

³ Business and Biodiversity Offsets Programme (BBOP). 2012. Standard on Biodiversity Offsets. BBOP, Washington, D.C. http://www.forest-trends.org/documents/files/doc_3078.pdf

the scope of our project. We intend only to provide a lens through which to view these programs and frame our later discussion on the results of the stakeholder interviews.

PART 2: INTERVIEWING PROFESSIONALS IN THE FIELD

We then conducted 27 phone interviews⁴ with 28 professionals working on Greater Sage-Grouse conservation and compensatory mitigation programs. We interviewed three broad groups of professionals: industry representatives, including a variety of small to large energy development representatives; government officials, including those working on sage-grouse issues with the USFWS, BLM, Department of Interior (DOI), Council on Environmental Quality (CEQ), and state natural resource agencies; and other participants, including professionals working in the field of compensatory mitigation for the Greater Sage-Grouse or Lesser prairie chicken (e.g. with conservation organizations such as TNC and other more regionally-focused organizations). Interviewees are based in Washington, D.C. and throughout the western U.S. For a full list of our participants, see Appendix I; for a full list of the questions asked, see Appendix II.

III. RESULTS

PART 1: PROGRAM MATRIX

In order to frame the discussion of our research findings, we first present a matrix comparing four program types directly relevant to the Greater Sage-Grouse according to principles that we feel reflect a high standard for compensatory mitigation. We also rank three specific, operational projects that are representative of one of the general program types. The relative rankings, informed only by empirical web-based research, provide an unbiased (though still subjective) baseline view of the programs' proven ability to meet the needs of the species. We later compare these rankings to opinions from professionals working in the field of compensatory mitigation. It should be noted, however, that the purpose of this research was not to undertake a comprehensive analysis of each mitigation option; rather, we sought to identify important program components that meet a high standard for compensatory mitigation and those program characteristics that are desired by program participants and regulatory agencies.

STEP 1: THE PROGRAMS

Summary

The following programs represent either 1) programs or projects being implemented on the ground that are directly involved in or can be instructive in the design of mitigation programs for Greater Sage-Grouse or 2) programs that have been proposed or are likely to arise in the context of Greater Sage-Grouse. As of the date of this report, the three operational programs have been officially endorsed or approved by the USFWS.

⁴ Some interviews were conducted before the Barrick Enabling Agreement was approved.

Conservation Banks

Under the traditional conservation banking model, a contiguous tract of land is held under easement in perpetuity in order to generate credits to offset impacts to candidate or listed species' habitat elsewhere. According to the USFWS 2003 Compensatory Banking Guidance⁵: "A conservation bank agreement is a legal agreement between the conservation bank owner and a regulatory agency such as the USFWS or other participating State and/or Federal agency that identifies the conditions and criteria under which the bank will be established and operated." A federal review team reviews all proposed banks before approving them. Conservation banks generate credits by preserving, restoring, enhancing, or creating new sage-grouse habitat within a defined service area; entities disrupting sage-grouse habitat through unavoidable impacts then purchase credits on a project-by-project basis. The next two programs we evaluated are specific examples of banks that have been approved for the Greater Sage-Grouse.

Sweetwater River Conservancy Conservation Bank

The Sweetwater River Conservancy Conservation Bank (Sweetwater) in Wyoming represents an example of the traditional conservation banking model discussed above. The Sweetwater bank, a collection of ten large historic ranches, was officially approved by the USFWS on March 18, 2015⁶, becoming the first conservation bank for the Greater Sage-Grouse. The bank encompasses over 700,000 acres of sage-grouse habitat, much of which is within the core areas laid out in Wyoming's state policy. Nearly a decade of research on the property shows that habitat requirements for the full life-cycle of the grouse can be met on the site. The Wyoming Stock Growers Agricultural Land Trust holds a conservation easement on the bank. For more information, see the USFWS Frequently Asked Questions around the Sweetwater Bank⁷.

Barrick Nevada Sage-Grouse Bank Enabling Agreement⁸

This plan is a result of collaboration between the Department of the Interior, the BLM, the USFWS, and Barrick Gold of North America and was approved by the USFWS on March 25, 2015. This agreement allows Barrick Gold to generate compensatory mitigation credits on private lands it owns and BLM lands on which it holds grazing rights. These credits can then be used to compensate for mining activity impacts on sage-grouse habitat in other areas. Through the agreement, FWS and BLM provide Barrick Gold with assurances that the agencies will support the eligibility of credits they develop to offset permitted impacts. The federal agencies involved have been guaranteed certainty that they will be able to monitor the project and

⁵ United States Federal Register. Guidance for the Establishment, Use, and Operation of Conservation Banks. Published May 8, 2003 (68 FR 24753). <https://federalregister.gov/a/03-11458>

⁶ USFWS. (2015). U.S. Fish and Wildlife Service, State of Wyoming, Sweetwater River Conservancy Launch Nation's First Greater Sage-Grouse Conservation Bank. Washington, D.C. <http://www.fws.gov/news/ShowNews.cfm?ID=2EA1ED88-F89B-76F0-9D79A5EB32AB6E61>

⁷ US Fish and Wildlife Service. (2015). Sweetwater River Conservancy Conservation Bank Frequently Asked Questions (Draft). Washington, D.C. <http://www.fws.gov/greatersagegrouse/QandAs/20150308Sweetwater%20River%20Conservancy%20Conservatio n%20Bank%20FAQs%20FINAL.pdf>

⁸ Department of the Interior, Bureau of Land Management, US Fish and Wildlife Service, and Barrick Gold of North America. (March 25, 2015). Barrick Nevada Sage-Grouse Bank Enabling Agreement. http://www.blm.gov/style/medialib/blm/nv/wildlife_fishes/sage_grouse/barrick_nv_sage_grouse.Par.65037.File.dat/DOI-Barrick%20Sage%20Grouse%20Agreement%20March2015.pdf

ensure that a net benefit is occurring for the species. All parties to the agreement (BLM, USFWS, and Barrick Gold) have agreed to use the Sage Grouse Conservation Forecasting Methodology developed by TNC to calculate credits accrued and impacts predicted for mining activities. The agreement also stipulates that if in the future Barrick Gold generates surplus credits, the parties can consider allowing the credits to be sold on the open market. We consider this agreement to be unique in that there are currently no other agreements of this type existing or known to be in development for the Greater Sage-Grouse or any other endangered or candidate species.

Habitat Credit Exchanges

Habitat credit exchanges are a compensatory mitigation option that establishes credit trading between willing buyers (developers or those who impact sage-grouse habitat) and sellers (those who take measurable conservation actions on the ground)⁹. Unlike conservation banks, habitat credit exchanges do not follow official guidelines laid out by the USFWS, and none have been approved to date by the USFWS. In the absence of formal USFWS approval, they can be accompanied by Candidate Conservation Agreements with Assurances (CCAA), which provide regulatory backing that conservation actions taken pre-ESA listing will also receive credit post-ESA listing. The programs establish a program administrator (either a non-profit or for-profit entity) who is responsible for evaluating both the demand and supply sides of the transaction. The administrator determines how many credits landowner action generates based on the quantity and quality of habitat protection/enhancement/etc. as well as how many credits buyers need (the mitigation ratio). Sometimes a fixed price is set for the credit, or else the price can be determined through negotiations between the buyer and seller. The administrator is responsible for monitoring the lands participating in the exchange. Exchanges are designed to generate short-term--usually a minimum of five years--or permanent contracts with a theoretically unlimited number of landowners. The contracts with sellers can generate credits right now or in the future (e.g. a contract could generate credits between 2025-2035).

Many states are considering the use of exchanges in their management of sage-grouse, with the furthest along being in Colorado¹⁰, Nevada¹¹, and Wyoming. The matrix rankings for habitat credit exchanges apply to the mechanism generally rather than to any one specific exchange under advisement, as all of the exchanges being contemplated have similar design features.

In-Lieu Fee Programs

In-lieu fee programs, such as the LPC Range-Wide Conservation Plan outlined below, require a formal agreement between the entity performing the impact, the party administering the program, and the regulatory agency. An in-lieu fee is an option for compensatory mitigation that requires the entity performing the impact to pay a fee in order to fulfill their offset

⁹ Hansen, K., A. Jakle, and M. Hogarty. 2013. Market-based Wildlife Mitigation in Wyoming: A Primer. Laramie, Wyoming: Ruckelshaus Institute of Environment and Natural Resources. <http://www.uwyo.edu/haub/ruckelshaus-institute/files/docs/publications/2013-market-based-mitigation.pdf>

¹⁰ Colorado Department of Natural Resources. (2014). Greater Sage-Grouse: Colorado Synthesis Report. Denver, CO. <http://dnr.state.co.us/SiteCollectionDocuments/News/ColoradoSynthesisReport.pdf>

¹¹ State of Nevada Conservation Credit System website. <https://www.enviroaccounting.com/NVCreditSystem/Program/Home>

obligations¹². In-lieu fee programs may be administered by the state or by a third party such as a non-profit conservation organization. The liability for performing the mitigation and the responsibility for monitoring and maintenance of the project site is transferred to the administrative entity. The administrative entity that accepts the fee applies that funding to mitigation projects such as habitat restoration and/or permanent conservation easements.

Lesser Prairie Chicken Range-Wide Conservation Plan

Developed and administered by the Western Association of Fish and Wildlife Agencies (WAFWA) with input from stakeholders, this plan is the official guiding document for Lesser prairie chicken conservation across its five-state range (Texas, Oklahoma, Kansas, Colorado, and New Mexico)¹³. It is useful to consider the LPC model as analogous to the Greater Sage-Grouse since this plan was developed while LPC was still a candidate species. The USFWS approved the plan in October 2013 and listed the species as ‘threatened’ under the Endangered Species Act five months later¹⁴. USFWS issued a 4(d) rule at the time of listing with the intent to limit the regulatory burden on landowners by providing a mechanism for incidental take. The mitigation measures outlined in the plan supported the USFWS’s decision to list the species as threatened rather than endangered.

The LPC Range-Wide Conservation Plan establishes an in-lieu fee program administered by WAFWA as the mechanisms for participants to satisfy their compensatory mitigation obligations under the program¹⁵. The program uses a 2:1 mitigation ratio. The enrollment fee is based on the USDA’s calculation for the cost of conservation actions. Credit generators can apply to receive these funds to carry out the approved conservation actions. Projects are selected based on the quality of their land for LPC habitat. Costs are re-evaluated every year as part of the plan’s adaptive management protocol. The program states that 25% of enrollment funds must be used for permanently protected habitat, although to date no funds have been allocated for permanent measures¹⁶. Implementation of this 25% rule is critical to meeting the plan’s conservation objective of establishing strongholds for the species. The plan’s 2014 Progress Report notes that developers are required to pay the enrollment fee in advance of the impact, but that there are accounts of noncompliance with this rule. Third party monitoring by

¹² US Fish and Wildlife Service. (2000). Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act.

<http://www.fws.gov/habitatconservation/Corps%20In-lieu-fee%20guidance.pdf>

¹³ Van Pelt, W.E., S. Kyle, J. Pitman, D. Klute, G. Beauprez, D. Schoeling, A. Janus, J. Haufler, 2013. The Lesser Prairie-Chicken Range-wide Conservation Plan. Western Association of Fish and Wildlife Agencies. Cheyenne, Wyoming, pp.367 <http://www.wafwa.org/documents/2013LPCRWPfinalfor4drule12092013.pdf>

¹⁴ United States Federal Register. (2014). Listing Determination for the Lesser Prairie-Chicken. (Docket No. FWS-R2-ES-2012-00714500030113) Washington, D.C. <https://www.federalregister.gov/articles/2014/04/10/2014-07302/endangered-and-threatened-wildlife-and-plants-determination-of-threatened-status-for-the-lesser>

¹⁵ Western Association of Fish and Wildlife Agencies. (2014). The Lesser Prairie-Chicken Range-Wide Conservation Plan Executive Summary.

<https://www.privatelandownernetwork.org/pdfs/RWP%20Executive%20Summary%20%2803-04-14%29.pdf>

¹⁶ Van Pelt, W.E., S. Kyle, J. Pitman, D. VonDeBur, M. Houts, 2015. The 2014 Lesser Prairie-Chicken Range-wide Conservation Plan Annual Progress Report. Western Association of Fish and Wildlife Agencies. Boise, Idaho, pp.91 http://www.wafwa.org/documents/LPC%20Annual%20final%20report%20033312015_FINAL.pdf

WAFWA had not yet been implemented at the time of the 2014 Progress Report but was slated to begin in 2015.

Permittee-Responsible Compensatory Mitigation¹⁷

Permittee-responsible compensatory mitigation is a mechanism by which those seeking to perform activities that will have unavoidable impacts on a species or habitat area are required to offset their impacts and reach an arrangement with the regulating body to design and implement their own mitigation projects to offset their impacts. Unlike banks and in-lieu fee programs, when a permittee satisfies their compensatory mitigation obligations themselves, the liability for the success of that project remains with the permittee. The permittee-responsible project is negotiated between the regulating agency (BLM and/or USFWS and/or the state DNR) and the project proponent. In some compensatory mitigation programs, such as those for wetlands and streams, permittee-responsible projects are approved as a special condition of the permit and, as a result, the compensatory measures are carried out concurrently with or after the project impacts.

STEP 2: THE STANDARDS

Summary

The following seven standards represent our selection of the most important and frequently documented principles guiding the design of compensatory mitigation programs for the Greater Sage-Grouse. They encompass all six standards outlined in the U.S. Fish and Wildlife Service Greater Sage-Grouse Range-Wide Mitigation Framework published in 2014 (which we will refer to as the USFWS Framework), as well as other principles suggested in the literature and recommended by the USFWS. While this list is not comprehensive, it attempts to concisely capture a broad range of opinions regarding mitigation principles.

We rank each of the specific programs outlined above based on our review of their program documents and the degree to which they adhere to these principles. We rank each of the program types based on our review of literature outlining the standards for each type. Namely we use the USFWS Conservation Banking Standards for banks and habitat credit exchanges and Section 404 of the Clean Water Act for in-lieu fee and permittee-responsible agreements. We assume programs are striving toward adherence to their respective standards; however we decrease scoring based on the fact that in-lieu fee, permittee-responsible, and habitat credit exchanges may not be required to adhere to these standards.

We also take into account two additional considerations across all criteria:

1. Transparency: programs that document their adherence to the principles through publicly available information are ranked higher.

¹⁷ US Army Corps of Engineers.(2010). Guidelines for Preparing a Compensatory Mitigation Plan. http://www.sac.usace.army.mil/Portals/43/docs/regulatory/Guidelines_for_Preparing_a_Compensatory_Mitigation_Planf.pdf

2. Certainty: programs that have been proven to provide results (either through approved programs or pilot testing) are ranked higher than those that have less certainty or are untested.

C1: Additionality

We define additionality according to the USFWS sage-grouse mitigation framework (p. 8) ¹⁸:

“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.”

Programs that rank highly for additionality will have an established baseline against which to measure conservation gains or losses. For the purposes of this ranking exercise, we hold to the FWS standard that federally-funded conservation actions that are not expressly designed for the purpose of mitigation do not count as additional. Additional gains to sage-grouse conservation can take the form of restoration, enhancement, creation, or protection of habitat.

C2: Durability

We combine the USFWS Framework’s Durability and Duration criteria (p. 8) ¹⁹ into one standard that reflects the confidence level around a compensatory mitigation program’s ability to and likelihood of undertaking successful mitigation actions for the duration of the impacting activity. Those programs that are designed to provide permanent compensatory mitigation for permanent impacts through site protections are given higher rankings. The Financial Assurances component rewards those programs that have an adequate mechanisms in place that 1) ensure mitigation will be carried out and 2) protect against the risk of mitigation failure. We also add a standard that rewards advanced implementation (i.e. conducting mitigation actions in advance of the impact to reduce time lags in the provision of functions and reduce risk).

C3: Siting

We define siting according to the USFWS Framework (p. 8) ²⁰:

“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.”

Programs are ranked according to the degree to which they can and do direct compensatory mitigation actions to highest priority lands and whether or not they incorporate public agency plans in their site selection. See the USFWS Greater Sage-Grouse Range-wide Mitigation Framework for full details on the standard for project site selection.

C4: Scientifically Defensible

For this criterion we include elements from the “Effectiveness” standard outlined by the USFWS Framework and specifically add a criterion on the use of scientifically valid, peer-reviewed

¹⁸ US Fish and Wildlife Service. (2014). Greater Sage-Grouse Range-Wide Mitigation Framework. Washington, D.C. http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSR%20RangeWide_Mitigation_Framework20140903.pdf

¹⁹ Ibid.

²⁰ Ibid.

literature to guide compensatory mitigation actions and programs. From the FWS framework, effectiveness is based in part on “biological effectiveness” (p. 15)²¹ which is closely tied to mitigation actions that are based on the biology of the sage-grouse and evaluated by likelihood of success, large-scale action, action or protection in appropriate areas, and use of both a baseline and future potential threats to determine credits (see framework for full details). A program that ranks highly will be based on actions that are proven in peer-reviewed literature and the degree to which the program encourages conservation in concert with what is known about sage-grouse biology (i.e. on large-scales, in meaningful areas, and consideration of habitat quality and future quality in crediting methodology). Programs that have already been approved by the FWS will automatically receive a higher score.

C5: Metrics and Methodology

This criterion is based in on the FWS sage-grouse mitigation framework and refers to both the methodology used to assess impacts and offsets. The USFWS Framework calls for “formal, consistent, rigorous but relatively simple methodology” (p. 18)²² to develop and evaluate credits and debits and provide an accounting system for tracking credits and debits.

C6: Stakeholder Participation

We define this criterion by the degree to which a variety of relevant stakeholders are involved in the process of collaboratively designing and implementing the compensatory mitigation program. A lower score indicates that few stakeholders are involved in the process of design and/or implementation and either of these processes are strongly dominated by one party. Programs are rewarded the most for equally involving all categories of relevant stakeholders (generally, federal agencies, state agencies, industry, conservation organizations, and landowners) in both design and implementation. We also score programs higher that allow for public review and comment on programs.

C7: Adaptive Management

We use the definition for adaptive management outlined in the FWS sage-grouse mitigation framework: “an iterative approach to decision-making, providing the opportunity to adjust decisions in light of learning with an overarching goals of reducing uncertainty over time” (p. 19)²³. We use this to refer to the implementation and maintenance of mitigation projects. While adaptive management is also important in terms of the administration of the program itself, we find that this sort of evaluation would require more in-depth investigation beyond the scope of this project. Therefore, we evaluate this criterion based on the degree to which the program has developed strategies to manage risk and adjust accordingly. Programs that are robust in their monitoring protocols, have established management benchmarks with triggers for identifying when strategies need to be evaluated, and have explicit considerations of risk and the possibility of credit reversals for non-compliance will rank highly.

²¹ US Fish and Wildlife Service. (2014). Greater Sage-Grouse Range-Wide Mitigation Framework. Washington, D.C. http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSR%20RangeWide_Mitigation_Framework20140903.pdf

²² Ibid.

²³ Ibid.

STEP 3: THE MATRIX

- C1: Additionality
- C2: Durability (Advanced Implementation, Duration, financial assurances)
- C3: Siting
- C4: Scientifically Defensible
- C5: Metrics
- C6: Stakeholder Participation
- C7: Adaptive Management

Mitigation Option	C1	C2				C3	C4	C5	C6	C7	Total
		Advanced Implementation	Duration	Financial Assurances							
					Avg						
Conservation Banks	5	5	5	5	5	5	5	5	3	5	33
Sweetwater River Conservancy Conservation Bank*	5	5	5	5	5	5	5	5	3	5	33
Barrick Enabling Agreement*	5	5	5	5	5	5	5	5	4	5	34
Habitat Credit Exchange	4	4	3	4	3.7	3	3	3	3	4	23.7
In-Lieu Fee	3	3	4	4	3.7	4	3	3	3	3	22.7
Lesser Prairie Chicken Range-Wide Plan*	5	4	2	3	3	3	3	4	5	5	28
Permittee-Responsible	3	3	4	4	3.7	2	3	3	1	3	18.7

Table 2. Program Matrix Rankings

*Programs that have been formally approved by USFWS as of the date of this report.

Ranking Justifications

First and foremost, it is important to note that programs types tended to receive lower scores than actual existing programs. This is because in evaluating general program types there is generally less certainty in what a program might achieve. This is especially important in considering our scoring for habitat credit exchanges (HCEs) since there are no examples to compare this type of program to and as such there is less certainty about what any given program will actually look like. Also, since in-lieu fees and permittee responsible mitigation for habitat do not necessarily need to follow the standards set out in Section 404 of the Clean Water Act (referred to as Section 404 or 404 Standards), uncertainty remains around whether or not programs will actually comply with that model. Therefore, even when the 404 standards are rigorous, we deduct points to account for this uncertainty. With these caveats in mind, here we present the reasoning behind select criteria:

Additionality: Since the USFWS banking guidance specifies that bank credits must be additional²⁴, programs meeting this standard receive a score of 5. In-lieu fees and permittee-responsible projects are not legally required to meet additionality standards as of yet (even under the Section 404 standard).

Durability: All programs scored lower than banks because banks are required to mitigate in advance of impacts, utilize permanent site protection instruments, and guarantee financial assurances. The 404 standard sets requirements for financial assurances and permanent protection, however there is uncertainty as to whether in-lieu fees and permittee-responsible mitigation programs for habitat follow this rule. Even if in-lieu fees or permittee-responsible projects were to meet the 404 standard, neither are required to perform all mitigation prior to impacts^{25,26}. The LPC Plan was ranked lowest because while it requires the creation of a certain amount of permanent compensatory mitigation credits, as mentioned above, to date no permanent credits have been generated²⁷.

Siting: Banks scored high on siting because, according to the USFWS banking guidance, they should be located in high priority (and therefore high value for conservation) lands. In-lieu fees scored second highest because if they follow the 404 standard, they would have a plan in place detailing how sites would be selected²⁸. Those sites would need to be ecologically suitable and incorporate federal agency plans. However, there is uncertainty as to whether in-lieu fee programs for habitat follow this requirement²⁹. Habitat credit exchanges and permittee-responsible agreements scored lower because the siting for these arrangements is much less certain. HCEs for example may allow for development of lower value credits on lower priority habitat. In terms of permittee-responsible, permittees are less likely and less able due to lack of expertise to find sites where adequate mitigation may be done.

Scientifically Defensible: Banks scored highest on this criterion because they are required to prove the validity of their mitigation actions based on sound science. In-lieu fee programs and permittee-responsible agreements scored lower because even if they meet the 404 Standards, there is no specific requirement for providing scientific backing for their decisions about siting

²⁴ United States Federal Register. Guidance for the Establishment, Use, and Operation of Conservation Banks. Published May 8, 2003 (68 FR 24753). <https://federalregister.gov/a/03-11458>

²⁵ US Army Corps of Engineers.(2010). Guidelines for Preparing a Compensatory Mitigation Plan. http://www.sac.usace.army.mil/Portals/43/docs/regulatory/Guidelines_for_Preparing_a_Compensatory_Mitigation_Planf.pdf

²⁶ Department of Defense, Army Corps of Engineers, and the Environmental Protection Agency. (2008). Compensatory Mitigation for Losses of Aquatic Resources; Final Rule.

²⁷ Van Pelt, W.E., S. Kyle, J. Pitman, D. VonDeBur, M. Houts, 2015. The 2014 Lesser Prairie-Chicken Range-wide Conservation Plan Annual Progress Report. Western Association of Fish and Wildlife Agencies. Boise, Idaho, pp.91 http://www.wafwa.org/documents/LPC%20Annual%20final%20report%20033312015_FINAL.pdf

²⁸ See footnote 23.

²⁹ Environmental Law Institute. June 2006. The Status and Character of In-Lieu Fee Mitigation in the United States. http://www.eli.org/sites/default/files/eli-pubs/d16_04.pdf

and management^{30,31}. Based on our review of the literature, there is little certainty about the science used in any programs that do not explicitly meet the USFWS banking standards.

Metrics: Banks rank highest in this category because their crediting methodology will be approved by the USFWS. While this should also be true for in lieu fees and permittee-responsible mitigation, we could not find documentation that a formal habitat-based crediting methodology has been established for these types of programs. Additionally, although the wetland in-lieu fee mitigation guidance states that in-lieu fee agreements should specify a methodology, it has been found that very few agreements actually follow this guideline³².

Stakeholder Participation: Banks scored lower on stakeholder engagement because although a banking agreement such as the Barrick Enabling Agreement, may be publically available, they still operate under private agreements subject to change only by the specific parties to the agreement. The Barrick Agreement scored so highly because it did involve various stakeholders including private industry, federal agencies, and a conservation organization (TNC). The LPC Plan received the highest score because it was developed collaboratively between various actors and provides for greater transparency and public scrutiny. Permittee-responsible mitigation ranked last here because projects are based on agreements between the regulatory agency and permittee; importantly, these actions do not require public review and comment before being finalized. Both banks and in-lieu fees require public review and comment. We cannot judge whether habitat credit exchanges will be better or worse than banks and in-lieu fees. No program types score above a 3 because we feel that all program types could more formally include stakeholders in program development.

Adaptive Management: Since the banking standard³³ requires considerations for risk mitigation and iterative decision-making, they automatically receive a score of 5 for this criterion (upon project approval). In-lieu fee and permittee-responsible projects are not required under the 404 standard to explicitly address managing for risk. Lack of oversight of these two program types also factors into their lower scores, as participants have little incentive to direct resources toward long-term management. The LPC Plan received a high score because their planning document does include significant provisions for adaptive management.

³⁰ US Fish and Wildlife Service. (2000). Federal Guidance on the Use of In-Lieu Fee Arrangements for Compensatory Mitigation under Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act. <http://www.fws.gov/habitatconservation/Corps%20In-lieu-fee%20guidance.pdf>

³¹ See footnote 24.

³² United States Government Accountability Office. (2005). Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure That Compensatory Mitigation Is Occurring.

³³ US Fish and Wildlife Service. (2014). Greater Sage-Grouse Range-Wide Mitigation Framework. Washington, D.C. http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSG%20RangeWide_Mitigation_Framework20140903.pdf

PART 2: PHONE INTERVIEW RESULTS

In this section we provide the results of our 27 phone interviews with 28 participants. We conducted 10 interviews with government officials, 12 interviews with other non-industry participants (the majority of which are representatives in non-profit conservation organizations), and 5 interviews with industry representatives. Each phone call lasted approximately one hour. All industry representatives answered the same set of industry-focused questions that were intended to ascertain their level of interest in compensatory mitigation options and their preferences for programs and program components. All non-government and non-industry employees answered the same set of questions that focused on the pros and cons of different programs and program types, what they considered to be a high standard for compensatory mitigation, and what they perceived as the demand by industry for compensatory mitigation options. Some government employees answered the USFWS questionnaire, while others answered the “other” questionnaire. The USFWS set of questions was focused on their preferences for programs and program components, what they saw as the pros and cons of these programs, and what regulatory assurances they were willing to provide to incentivize industry to participate in programs. See Appendix II for a full list of questions for each group of participants.

DEMAND BY INDUSTRY

Five industry representatives responded to the following questions:

Is your company interested in purchasing credits?

- One out of five industry representatives said that they definitely had an interest in securing credits
- All five industry representatives indicated that their interest was contingent on where their company was operating or would soon be operating in sage-grouse habitat (i.e., on BLM or state land and in areas where unavoidable impacts would occur)

What is driving your company’s interest or lack thereof?

- All five industry representatives said that regulation or the potential for future regulation is the main factor driving their interest in compensatory mitigation options
- Other factors driving interest, as indicated by one industry representative, include the company’s core values, interest in working with the community, and the assurance of having the ability to continue operations

Does the Congressional rider impact your level of interest?

- All five industry representatives said that the Congressional rider has no impact on their interest in securing compensatory mitigation credits
- Two representatives mentioned that compensatory mitigation will be required regardless of the rider

What is your company’s level of interest? Can you provide a rough estimate of acres?

- Four out of five industry representatives characterized their interest as high or fairly high if regulatory assurances are in place

- One out of five industry representatives could not provide comment
- No industry representatives felt that they could accurately characterize the quantity of acres they might be interested in securing due to the uncertainty of the design and structure of potential programs (e.g., uniform mitigation accounting systems are not yet established)
- Other factors that were identified as factors in industry interest include: the complexity of the program, where the money will go, how the money is managed, and by whom the money is managed, what protections there will be for participants, and what regulatory assurances they will receive

What experiences has your company had with other compensatory mitigation programs?

- Four out of five industry representatives said their company had experience with Lesser prairie chicken compensatory mitigation options
- Three of the industry representatives stated that their experience with LPC led them to favor in-lieu fee programs
- One mentioned having a positive experience with the Western Association of Fish and Wildlife Agencies
- One stated that experience with LPC contributed to a dislike of banks
- Three of the industry representatives had experience with the Dune Sage Brush Lizard (an endangered species)
- Two representatives mentioned that they had a positive experience with their partnerships with NGOs and state agencies

What compensatory mitigation mechanisms is your company involved in right now? And does your company's current activities meet your company's needs?

- Four out of five industry representatives said that their company was not currently engaged in any compensatory mitigation programs for the Greater Sage-Grouse
 - Two out of these four cited that this was because there are no existing programs for them to be involved in at the moment
 - Another representative stressed that compensatory mitigation has not been required until very recently
- Two industry representatives emphasized that their company was performing mitigation measures on-site (avoidance and minimization)
- One out of five industry representatives said their company was currently engaged in at least one compensatory mitigation program for the Greater Sage-Grouse
 - The company is engaged in piloting a habitat credit exchange in collaboration with an NGO
 - The company is also voluntarily paying into a conservation fund for Greater Sage-Grouse research
- Two of the industry representatives explicitly stated that their current activities meet their current needs for compensatory mitigation

What is your company's ideal compensatory mitigation mechanism?

- Four out of five industry representatives said that their ideal compensatory mitigation mechanism would be an in-lieu fee type program
- One representative stated that this preference is due to the certainty that in-lieu fee provides on costs over time
- One out of five industry representatives stated that their primary concern was for any option that best benefits the sage-grouse

What regulatory assurances would incentivize your company's interest?

Each of the following assurances were mentioned once:

- Cost assurances
- Certainty in the actions companies would be required to take
- Protection from changes in regulations
- Having input when changes to a plan must happen
- Near-term assurance, to the extent possible, that development will be allowed on a given piece of property

Are there compensatory mitigation mechanisms such as conservation banks, in-lieu fee programs, permittee-responsible mitigation or habitat credit exchanges that you are more or less inclined to pursue?

The following table presents the results of this question. The results only report definitive answers. In other words, this table does not include respondents who 1) did not answer the question, 2) stated that they “don’t know”, or 3) stated that program design will determine interest in the program. It should be noted that a fifth industry respondent stated the company would prefer banks or exchanges, but only if they could operate under a “fair” exchange rate.

Mitigation Option:	Banks	Habitat Credit Exchanges	In-Lieu Fee Programs	Permittee-responsible
Proportion of industry representatives who would be more inclined to pursue an option	0/4	0/4	4/4	0/4
Proportion of industry representatives who would be less inclined to pursue an option	3/4	2/4	0/4	0/4
Net response	-3	-2	+4	0

Table 3. Mitigation Options Industry Representatives Indicated They Are More or Less Inclined to Pursue

PERCEPTIONS OF INDUSTRY DEMAND FOR MITIGATION OPTIONS

The following questions were asked of 22 non-industry (i.e. government, conservation NGO, and other) professionals to determine the level of perceived demand for compensatory mitigation options for the Greater Sage-Grouse. Interviewees' perceptions were based on personal conversations with industry representatives, second-hand information, and best professional judgment.

Has industry expressed interest in having compensatory mitigation options available for the Greater Sage-Grouse?

- 100% (11/11) of public sector employees said yes.
- Most government employees did not cite caveats to interest, but rather gave reasons for the interest, including precluding listing and wanting certainty in project approval. Others gave proof for the demand by saying the mechanisms currently available would not have been created if there were no demand. Barrick and Sweetwater were cited as examples.
- 83% (10/12) of non-industry representatives stated that although they perceived an interest, there were caveats to that interest.
- Most interviewees said that interest is driven solely by regulations/requirements for compensatory mitigation. They did not say industry was interested in purchasing credits, but rather is watching the process of program development very closely.
- The two other respondents who did not say yes said that they were not sure about demand and that industry would only become interested if new regulations for mitigation were imposed (e.g., an ESA listing).

If so, have they expressed a preference for or against any specific mechanisms (for example banks, in-lieu fee, permittee-responsible, habitat credit exchanges)?

The following table presents the results of this question. The results only report definitive answers. In other words, this table does not include respondents who 1) did not answer the question, 2) stated that they "don't know", or 3) stated that program design will determine its ability to meet a high standard.

Mitigation Option:	Banks	Habitat Credit Exchanges	In-Lieu Fee Programs	Permittee-responsible
Number of non-industry representatives who perceive industry preference for option	3	2	8	2
Number of non-industry representatives who perceive industry preference against option	0	1	0	2
Net response	+3	+1	+8	0

Table 4. Non-industry Representatives Perceptions on Industry Mitigation Program Preferences

Respondents who did not perceive preferences for specific programs often perceived preferences for program components. Often interviewees stated that industry: wants USFWS program approval, does not care about the mechanism per se, prefers the easiest and cheapest mechanism that provides the most cost and regulatory certainty, and wants many options available.

Do you think there is a demand for sage-grouse conservation bank credits from industry?

- One third of interviewees working outside of industry and government definitively said they perceive industry demand for bank credits.
- Two government employees definitively said they perceive industry demand for bank credits.

What general categories of industry have expressed interest?

This table presents the results from this question. The results that are represented may reflect the type of industry most active in sage-grouse habitat, that the people we talked to have most interacted with these categories of industry, or other factors.

Number of respondents citing interest from sector:	Oil and gas	Mining	Development	Transmission	Renewables
Total (out of 21 interviewees perceiving industry interest):	15	10	1	6	9

Table 5. Non-Industry Representatives Perception of Categories of Industry Interest

Is demand being met?

- Three interviewees felt that demand is not being met by existing compensatory mitigation options.
- One interviewee felt that demand will not be met if the species is listed or other regulations require compensatory mitigation for sage-grouse.
- The remaining interviewees generally felt that demand is being met by existing programs.

DEFINING A HIGH STANDARD FOR COMPENSATORY MITIGATION

Twenty-two non-industry respondents were asked to respond to the question: *How do you define a high standard for compensatory mitigation?*

- Eight respondents directly cited the USFWS mitigation standards as the high standard for compensatory mitigation.
- Those that did not cite the standard directly mentioned parts of the standard they feel are most important. Few if any components are not included in the USFWS standard.
- For full results to this question, see Appendix III, Item A.

MEETING A HIGH STANDARD FOR COMPENSATORY MITIGATION

Twenty-two non-industry respondents were asked to respond to the question: *Do you feel these programs meet a high standard for compensatory mitigation?* Interviewees responded in reference to a) the programs they had identified as being in place or possible for compensatory mitigation for sage-grouse and b) what they had defined to be a high standard for compensatory mitigation.

The following table presents the results of this question. The results only report definitive answers. In other words, this table does not include respondents who 1) did not answer the question, 2) stated that they “don’t know”, or 3) stated that program design will determine which programs meet high standards.

Mitigation Option:	Banks	Habitat Credit Exchanges	In-Lieu Fee Programs	Permittee-responsible
Proportion of government participants who feel option meets high standard	9/11	10/11	4/11	3/11
Proportion of other participants who feel option meets high standard	6/7	4/7	0/7	1/7
Total proportion	15/18	14/18	4/18	4/18

Table 6. Which Programs Meet a High Standing According to Industry and Non-Industry Representatives

BEST TYPE OF MITIGATION PROGRAM

Twelve non-industry participants were asked to respond to the question: *What do you think is the best type of mitigation mechanism for Greater Sage-Grouse?*

Summary results:

- All but four interviewees stated that they could not judge the best type of mitigation mechanism. Many of these respondents named characteristics that the best program would have. These results line up directly with interviewees' responses outlined in the following section.
- Of the four respondents who cited specific programs, three mentioned banks, one mentioned in-lieu fee programs, and one mentioned habitat credit exchanges (respondents could choose more than one program).
- Two of the respondents who chose specific mechanisms are integrally involved in the development of their respective choice programs on the ground.

PROGRAM COMPARISON

Non-industry participants were asked to respond to the following questions related to existing programs or programs being considered. A total of 22 interviewees responded to these questions. Our results reflect which programs are more well-known among those we interviewed, some of the key characteristics these programs are seen to have, and the advantages and disadvantages each program is viewed to have.

What compensatory mitigation mechanisms are currently being proposed and/or implemented for the Greater Sage-Grouse?

This table shows which compensatory mitigation mechanisms are most well-known or recognized to be in progress or existing for sage-grouse. This includes responses from federal and state government agency representatives as well as other participants. Only industry representatives did not respond to these questions.

Mechanisms:	Banks	Habitat Credit Exchanges	In-Lieu Fee Programs	Permittee-Responsible
Proportion of all respondents that knew mechanism is being proposed or employed for sage-grouse	20/22	20/22	7/22	6/22

Table 7. Known Programs in Existence or Proposed

What are the key characteristics of these programs or mechanisms?

Key characteristics of programs that were mentioned are as follows:

- Mitigation or Conservation Banks
 - Well-defined boundaries
 - Transfer of liability from permittee to bank

- Third-party ownership
- Habitat Credit Exchanges
 - Land held by a diverse set of smaller landowners
 - Liability transfers to the exchange
 - The program administrator is responsible for maintenance and monitoring
- In-Lieu Fee Programs
 - The permittee pays a set amount to compensate for impacts
 - The funds generated are used to perform compensatory mitigation
- Permittee-Responsible Agreements
 - Liability remains with the permittee
 - Compensatory mitigation sites must be identified

What are the respective pros and cons of each of these programs?

The main themes of pros and cons of these programs as expressed by non-industry interviewees are in the following table. For tables showing all responses and frequency of response, see Appendix III, Item B.

Table 8. Pros and Cons of Existing and Potential Programs		
Banks	Pros	High level of confidence in effectiveness, heavily monitored and accountable to high standards, mitigation is done in advance and is proven to be scientifically valid
	Cons	Service area could exclude valuable habitat, centralized location makes them more vulnerable to threats (fire and invasive species), difficult to scale up
Habitat Credit Exchanges	Pros	Able to operate on larger landscape level, allows more people to participate, is flexible (many options are available for landowners and industry)
	Cons	Credits are not necessarily permanent, there is much uncertainty since it has never been tested, credits may be inappropriately priced and undermine other programs and investments in other compensatory mitigation options
In-Lieu Fees	Pros	Allows for a project-by-project approach, those who run the program are motivated to provide benefits to the species, transfers industry liability to administrator
	Cons	Impossible to guarantee the same standards as banks, appropriate fee prices can be difficult to establish, often not timely and not transparent
Permittee-Responsible	Pros	Agreement is between regulator and project proponent, some industry believes they can do it more cost effectively by negotiating their own deal
	Cons	Has a mixed record of success, uncertainty in predicting requirements and costs, industry has to do the monitoring and maintenance often with inadequate oversight

IMPORTANT COMPONENTS OF COMPENSATORY MITIGATION PROGRAMS

The following components were stated to be important by at least one industry and at least one non-industry participant:

- Cost certainty for industry
- Flexibility
- Regulatory certainty
- Including industry in program development
- Simplicity
- Certainty of mitigation effectiveness

The following components are the top five most frequent responses to the question posed to industry: *What program components would preclude your company from participating in a compensatory mitigation program?*

- Program run by for-profit entity with significant overhead costs
- High cost
- Unclear derivation of cost
- Lack of regulatory assurances
- No provisions for incidental take

For full results to this question, see Appendix III, Item C.

FEDERAL AGENCY SUPPORT FOR COMPENSATORY MITIGATION PROGRAMS

If FWS were to support the establishment of a conservation banking program or individual banks for sage-grouse, how would such a program be structured? Five interviewees answered this question: 3 FWS representatives, 1 DOI representative, and 1 BLM representative.

- All 3 FWS representatives answered the question only in terms of banks.
- One FWS agent remarked that FWS prefers banks over “bank-like” structures.
- All FWS representatives pointed to the FWS official framework guiding bank development.
- The BLM representative thought BLM would support programs (did not specify banks) with a clear action plan, a clear set of goals and objectives, robust monitoring, and reporting.

What key characteristics would such banks have, for example permanent conservation, additionality, etc.? Four interviewees answered this question: 2 BLM representatives, 1 DOI representative, and 1 FWS representative.

- Characteristics included: durability (2), additionality (3), centralized area, mechanism to evaluate habitat values before and after mitigation, need to find land already banked (2), clear accounting for tracking credits, financial assurance to cover these elements, accountability, transparency, consistent application of metrics, timeliness, and monitoring.

What regulatory assurances or other incentives would FWS likely provide to incentivize project proponents to purchase credits? Six interviewees answered this question: 3 FWS representatives, 1 DOI representative, and 2 BLM representatives.

- Two FWS representatives said that FWS would certify that actions taken pre-listing would “count” post-listing.
- One FWS representative stated that the Service could not provide regulatory assurances to participants to certify status of actions pre- vs post-listing.
- Both BLM representatives stated that BLM could require mitigation as part of their permitting processes on BLM lands.
- CCAA’s were mentioned as a model to follow on this subject.

THE ROLES OF USFWS, BLM, STATES, NGOS, AND THE PRIVATE SECTOR

All 28 interviewees responded to the following question. Some however, did not address (or were not asked) about the role of states and/or the roles of private sector. *What roles could the FWS, BLM, states, conservation organizations, and the private sector be playing to support the establishment of compensatory mitigation mechanisms that meet a high standard?*

See Appendix III, Item D for a full table with all responses to this question.

- According to our respondents, the most important role the FWS should have is upholding their regulatory functions such as:
 - Setting standards, establishing clear guidelines and approving programs
 - Approving and then enforcement of programs
- The BLM could also be supporting the approval of compensatory mitigation mechanisms through such activities as:
 - Setting standards, regulating activities on BLM lands, and establishing clear guidelines
 - Ensuring mitigation is actually addressing the impacts
 - Running and supporting pilot projects
- The states should be:
 - Drafting their own banking frameworks and seeking FWS approval
 - Providing their on-the-ground expertise in the development of programs
- Conservation organizations (NGOs) should be:
 - Providing the science that can go into design and monitoring of projects
 - Providing some level of third-party oversight for projects and possible managing projects and holding conservation easements themselves
 - Looking at the landscape-scale picture to help focus mitigation efforts and guide industry development
- Industry should be:
 - Participating equally with other parties to help create systems that are workable for them

STATE LEVEL INITIATIVES

All 28 interviewees responded to the question: *How do state level initiatives affect the adoption of compensatory mitigation programs?*

Common themes:

1. *Varying commitment by states at present to undertake or support compensatory mitigation program development.*
2. *Consequences of inconsistencies in approaches to compensatory mitigation across states.*
 - Several interviewees cited the danger that if one state sells credits cheaper than a neighboring state, a “race to the bottom” could occur. Credit prices could drive where development happens, and state competition could result in prices that do not incentivize avoidance.
 - Inconsistencies across state approaches, definitions of a credit, and measurements make it difficult to assess what benefits are actually being provided to the grouse across a landscape scale.
 - Inconsistencies across states make it nearly impossible to impact in one state but mitigate in another, a situation that may be warranted in some instances.
 - Several sources noted that theoretically, differences in state action should spur innovation and creativity. However, this learning has yet to be seen in practice.
3. *Addressing inconsistencies across state initiatives.*
 - Most interviewees saw a need for states to coordinate their programs.
 - Landscape- scale organizations (e.g. TNC, the Environmental Defense Fund, the Western Association of Fish and Wildlife Agencies), when functioning as program administrators, can “level the playing field”.
 - There is a need for an overarching monitoring mechanism to make sure all states are making sincere efforts in this field.
 - Both government and industry representatives said that while states should work toward consistent policies, there needs to be a certain level of flexibility to account for differences in habitat across state lines.
4. *Need for coordination between compensatory mitigation programs and state and federal conservation actions.*
5. *Relationship between state initiatives and state-specific policy.*
 - State policy defines the bounds for what is possible in terms of compensatory mitigation in a given state.
 - State regulations are necessary to give programs “enforceability”.
 - In the absence of federal regulations, states can provide regulatory assurances that drive demand for mitigation credits.
6. *Federal vs state management.*

- State initiatives may incite better participation from landowners.
- If the species is listed, there is speculation that some states that have projects in the early stages of development may discontinue their efforts.
- States see voluntary programs as a way to maintain control over the management of sage-grouse.

IV. DISCUSSION

DEMAND: *Is there demand by industry for having compensatory mitigation options available for the Greater Sage-Grouse?*

Based on interviews with 28 industry, regulatory, and other respondents, we conclude that there is a high degree of interest in the development of standards, policies, and compensatory mitigation options relevant to sage-grouse. While industry may not be ready to purchase credits at this time (or perhaps to admit directly a demand for purchasing credits), they are certainly watching the process closely and may be willing to engage in pilot testing of new options. Though we only interviewed five representatives directly employed by industry, the consistency in responses offers us a certain degree of confidence that we can draw these conclusions from our conversations.

Across the board, the most important driver for industry demand is anticipated regulation requiring compensatory mitigation for sage-grouse. Industry is anticipating either a listing of the species, due in part to past experience with the Lesser prairie chicken, or at least new BLM standards in the forthcoming RMPs that require compensatory mitigation for sage-grouse on BLM lands. Aside from these regulatory possibilities, industry also perceives that states may play a role, to varying degrees, in the adoption of new requirements for mitigation.

We observed a split between companies with interest in proactively seeking credits or engaging with program development and those that waiting to see how the regulatory landscape evolves. This split could stem from differences in how the companies perceive the likelihood of new regulation (a listing or otherwise).

The Congressional rider barring implementation of sage-grouse related regulation does not appear to be influencing industry demand for compensatory mitigation options. If anything, it may lead industry to perceive they have more time to “prepare” for a listing. However, for the most part, industry believes that USFWS will make a listing decision regardless of the rider, and that BLM and the states will continue to create new policies around sage-grouse conservation.

Based on these findings, we conclude that it is unlikely that the demand for compensatory mitigation options will grow in the absence of new drivers such as a listing or policies like BLM’s RMPs. Precluding a threatened or endangered listing decision does not seem to be a strong enough driver for industry to participate fully in compensatory mitigation. This is likely because

industry never was confident that early, voluntary actions would be sufficient to preclude a listing. For those companies operating or planning to operate on BLM lands, we are likely to see them wait until after the new RMPs are released to take action. Other companies are likely to wait until after a listing decision or new state regulations are in place before they take action. If a listing and/or new policies requiring mitigation do not occur, action will not be warranted (outside of requirements in the RMPs), and if these policies do occur, companies will be able to more easily decipher the programs that meet regulatory requirements (i.e. USFWS, BLM, or state agency approval).

Under current circumstances, we perceive a fairly stagnant level of demand for compensatory mitigation. In other words, at the current level of regulation, industry demand for compensatory mitigation options is being met by their current actions (or non-action). Again, those companies who perceive a higher likelihood of a change in regulation are likely to be those engaging in the establishment of banks, habitat credit exchange pilots, or voluntary permittee-driven mitigation actions. In this way they are meeting their demand for risk mitigation.

If new policies are established, this will likely catalyze an upward shift in demand for compensatory mitigation options. In such a scenario, industry is likely to respond most favorably to compensatory mitigation options that have the following characteristics:

- Cost assurances,
- Certainty in the actions companies would be required to take,
- Protection from changes in regulations,
- Having input when changes to a plan must happen, and
- Near-term assurance, to the extent possible, that development will be allowed on a given piece of property.

Government agency employees tended to have a clear understanding of reasons for industry demanding compensatory mitigation options, while NGO employees tended to have a better understanding of limits to that demand. This implies that compensatory mitigation programs should be development through collaborative processes that include public, non-profit, and private sector professionals.

Once clear standards and mitigation requirements are established, industry interest in any particular program will depend largely on its components/characteristics. We discuss meeting this type of demand in the following section. Overall, it is important to note that industry would like to see a wide variety of options available for compensatory mitigation. We speculate that this may be because at least one program type will provide the components of most interest to industry and/or competition in the market may drive credit prices down.

A clear example of demand for compensatory mitigation options is the the Barrick Enabling Agreement. This agreement was driven by Barrick Gold and was highly collaborative between the BLM, the USFWS, and TNC. Not only does this indicate demand by industry for credit generation and support by regulators, but the Barrick Agreement also received the highest

score of all programs in our evaluation in Part I of our research. It is a robust agreement and provides all of the assurances that both Barrick and the federal agencies require. We find this a hopeful example of ways in which these various stakeholders can find common ground and reach outcomes that will result in a net gain for sage-grouse. While we hope that this agreement can provide a model on which to base future agreements and programs, the costs of creating this type of agreement may be prohibitive for smaller industry entities both in terms of spending the time to negotiate with federal agencies and conservation NGOs and in terms of the costs of securing land for the purpose of conservation. We now turn to how programs might be structured to meet the demand for compensatory mitigation options.

PROGRAM STRUCTURE: *Meeting demand and providing highest conservation benefit*

In this section we first explore what lessons can be gained from the experiences with the LPC Plan. Then we elaborate on our program comparisons from the program matrix (Part I) and integrate the data compiled from the interviews that were conducted (Part II). Our purpose is to emphasize the overlapping preferences between industry and non-industry participants to discover how a given program may both meet a high standard for compensatory mitigation and appeal to industry. We suggest a list of components that any program should include in order to achieve this and we provide some specific suggestions for improvements that programs could benefit from.

The Lesser Prairie Chicken and the Greater Sage-Grouse: Importance of Process and Follow-Through

The Lesser prairie chicken (LPC) provides a point of comparison for considering compensatory mitigation mechanisms for the Greater Sage-Grouse (GSG)³⁴. However, differences between the ranges of the two species and between the current and past regulatory environments preclude us from making direct comparisons and drawing definitive conclusions. Until recently, the LPC was a candidate species, and states, conservation organizations, and some industry groups were also mobilizing to develop compensatory mitigation programs in preparation for requirements. Because of the parallels between LPC and sage-grouse, we chose to include the current LPC Plan in our Program Matrix as well as explore the perceptions and experiences of the Plan in our interviews. Many of our interviewees expressed the positive nature of this collaborative program and the potential it holds to address mitigation at the landscape level. They also recognized that organizing and coming to an agreement across five states was challenging, and undertaking a similar agreement across eleven states for the Greater Sage-Grouse is unlikely to be feasible. The LPC was also listed under the Endangered Species Act in

³⁴ Please note that a comprehensive review of the LPC agreement is not within the scope of this report. We intend only to give suggestions and draw some basic comparisons based on our own limited review of the program and other professionals' responses to our questions about the program.

2014, and therefore compensatory mitigation mechanisms are now supported by a federal regulatory system rather than state or BLM mitigation requirements.

The most significant lessons we can draw from the LPC Plan for developing GSG compensatory mitigation programs come from looking at 1) the process of how the LPC programs developed before the species was listed and 2) the successes and pitfalls the programs have experienced since the listing decision. We view the LPC Plan as a collaborative experiment that has been controversial but also holds promise for future compensatory mitigation frameworks. We find that open and equal collaboration between the relevant actors is necessary for the success of any program and stress the necessity for all actors to commit to fulfilling their roles and obligations. Where the LPC Plan has fallen short is in following through with commitments to secure permanent credits for a portion of the compensatory mitigation and in enforcing additionality and timeliness measures for mitigation actions.

Overview of key characteristics of programs for the Greater Sage-Grouse

As shown in our results, the most well known programs currently in development or already approved are conservation banks and habitat credit exchanges. While banks establish permanent conservation easements in fixed, well-defined areas, habitat credit exchanges operate on a larger, generally statewide, scale. HCEs allow landowners across the state to generate and sell credits for maintaining or managing habitat on their land permanently or for a set period of time. Interviewees frequently expressed concern that habitat credit exchanges are as-yet untried, and therefore it is difficult to evaluate them and judge how successful they might be. In-lieu fee programs and permittee-responsible arrangements were the least discussed mechanisms among non-industry participants; conversely, industry participants unanimously preferred an in-lieu fee type program.

The general consensus we heard from most of our participants is that having different options for compensatory mitigation mechanisms is a positive both for achieving net gain for the species and for involving a variety of participants. While we see strong trends in preferences for certain types of program by specific groups (industry preference for in-lieu fee and regulatory agency preference for banks for instance), most of our interviewees also agreed that any program that is well-designed and includes certain characteristics would have the potential to be effective for achieving net gain for the GSG and be attractive to industry. In the next section we will focus on the overlapping preferences between the three broad groups of interviewees (industry, government, and other) within the context of meeting the criteria established in Part 1 for our program comparison.

Overlapping Preferences for Program Characteristics

We can group our interviewees into three broad categories: industry, government, and conservation NGOs. We recognize that there are interviewees that did not fit into any of these groups, and we caution that not all interviewees in each group responded in the same way. However, from our conversations there are distinct patterns that stand out among each group.

Non-industry (conservation NGOs and government officials) interviewees frequently referenced the USFWS Standards for Conservation Banking in discussing the important characteristics any

program should include. This is obviously closely aligned with the criteria we developed for evaluating programs, since we sourced our criteria from the USFWS Mitigation Framework for GSG, which reflects the USFWS Banking Standards. As a reminder, our criteria include: Additionality (C1), Durability (C2), Siting (C3), Scientifically Defensible (C4), Metrics and Methodology (C5), Stakeholder Participation (C6), and Adaptive Management (C7). Industry representatives most strongly emphasized the need for cost certainty and mentioned several program characteristics that would preclude them from participating in a compensatory mitigation program. This includes high cost, unclear derivation of cost, lack of regulatory assurances, lack of provisions for incidental take, and at least one representative emphasized that they would be highly cautious of any program run by a for-profit entity because of their profit focus and significant overhead costs.

It is apparent that there are areas where industry and non-industry interests diverge in their preferences. However, we also found that there are important areas of overlaps between these three groups. While many non-industry interviewees strongly aligned with the USFWS Framework in their preferences for program characteristics, government representatives and conservation NGOs differed in their respective priorities. Government agency representatives tended to focus more on the importance of scientific defensibility of program implementation and results in addition to the simplicity in the use of a program. Conservation NGO representatives tended to focus on the ability of a program to achieve net gain for GSG and the importance of stakeholder participation. Industry interviewees and at least one non-industry interviewee mentioned the importance of cost certainty for industry, flexibility, regulatory certainty, inclusion of all parties (including industry) in program development, simplicity, and certainty of mitigation effectiveness that has proven benefits for the species.

Overall we found that the following program components are areas where these three broad groups can generally agree:

1. Consistent, transparent, and simple crediting methodology that provides:
 - Credit- and debit-tracking capability,
 - Science-based and is grounded in the biology of the bird and takes into account baseline and predicted future habitat quality, and
 - Is directly and consistently connected to pricing mechanisms.
2. Identification of and action in the highest priority habitat and where restoration and/or enhancement activities can have the most meaningful impacts for the least input.
3. Inclusion of a process that continuously engages all stakeholders in meaningful dialogue. This includes engaging with other compensatory mitigation programs that are being developed, are approved, or have been proposed.

We do not suggest that these components are comprehensive or all that is required for a successful mitigation program in the case of the Greater Sage-Grouse as a candidate species. We are suggesting that these overlapping areas provide space for meaningful conversation

between regulatory agencies, industry representatives, and conservation NGOs in the development and implementation of compensatory mitigation programs. We also suggest that successful programs should incorporate these components in conjunction with meeting the USFWS Standards. We posit that successful compensatory mitigation efforts will only be accomplished with a variety of programs doing a variety of work.

FINDING THE RIGHT MIX OF PROGRAMS

In order to begin translating our discussion of program components into that of program types, we first compare 1) the program rankings from our 7-criteria matrix in Part 1 of the Results section, 2) government, NGO, and other non-industry participants' average program preferences in Table 6 (assuming their preferences align with those programs they stated meet their definition of a high standard for compensatory mitigation), and 3) industry's average program preferences. The latter two numbers were tabulated based on the number of people who said a program meets a high standard or number of people who said they were more or less inclined to pursue a program type. For instance, under "Industry Preferences", the programs are ranked according to their net values in Table 3 (number of respondents more likely to pursue an option minus those less inclined to pursue an option).

Our Rankings		Non-Industry Preferences	Industry Preferences
1	Banks	Banks	In-Lieu Fee
2	Habitat Credit Exchanges	Habitat Credit Exchanges	Permittee-Responsible
3	In-Lieu Fee	In-Lieu Fee/ Permittee Responsible	Habitat Credit Exchanges
4	Permittee-Responsible		Banks

Table 9. Comparison of Program Types Across Standards

Based on this comparison—keeping in mind the strengths of program preferences expressed in Tables 3 (industry) and 6 (non-industry)—and preferred program components, we can offer suggestions for how to move forward with program development and selection. Since both sets of rankings for meeting a high standard rank permittee-responsible mitigation last, and industry representatives were neutral on the program, we suggest that permittee-responsible mitigation be mostly left out of the future mix of programs used for Greater Sage-Grouse conservation. The following sections describe suggestions for the other three mechanisms in detail.

IMPROVING IN-LIEU FEE PROGRAMS

Since in-lieu fee programs were the only type to receive a positive net ranking by industry, and thus rank first in Table 9 above, we believe they will be an important component of the mitigation mix. In recognizing this, we use Table 10 below to describe improvements that can be made to in-lieu fees to move them toward meeting a high standard for compensatory mitigation. These improvements should take place *before* they are heavily incorporated into the mix for Greater Sage-Grouse since both standard-based rankings placed the program type third. Some of these improvements can be achieved by holding to the Section 404 standards for in-lieu fee programs; others represent improvements beyond what those standards require.

Shortcomings	Suggested Improvements
Uncertain Timing of Action	Fees can only be paid for projects that have already been implemented
Fair Pricing (that doesn't undercut other programs)	Pricing reviewed and set annually based on predicted market for credits
Lack of Transparency	Require production of public reports and allow access to pricing methodology
Weak Accountability	Make program accountable to regulators for achieving and proving net benefit

Table 10. Suggested Improvements to In-Lieu Fee Programs

MAKING CONSERVATION BANKS MORE ATTRACTIVE

According to both standard-based rankings (the first two columns in Table 9), conservation banks best meet a high standard for compensatory mitigation. Therefore, they should play the biggest part in the mitigation mix. However, industry representatives ranked banks last (i.e. this program type had the most people say they would be *less* inclined to pursue it). In order for the mitigation to have the greatest impact, improvements should be made to encourage industry participation in this program type over others. We describe some of those improvements in Table 11 below.

Shortcomings	Suggested Improvements
Expensive (time and money)	Simple and understandable pricing method
Uncertain Cost	Consistent and transparent crediting methodology tied to prices
Lack of input and information	Participation of stakeholders (including industry) in all parts of the process
For-Profit Focus	Make program accountable to regulators for achieving and proving net benefit

Table 11. Suggested Improvements to Conservation Banks

MEETING IN THE MIDDLE: HABITAT CREDIT EXCHANGES

Habitat credit exchanges, while ranking quite far behind banks in our empirical ranking matrix, were nearly equal to banks in the number of non-industry participants who said they meet a high standard. Thus, government, NGO, and other non-industry employees in charge of setting and administering the mix of mitigation programs for Greater Sage-Grouse do feel that this *could* be an important option to include. Industry representatives were less inclined to pursue this option compared to in-lieu fee programs and permittee-responsible mitigation, but they had fewer negative responses to exchanges than to banks. Given that most participants were not able to say outright that they disliked this option, it may be easier to find agreement around exchanges than banks or in-lieu fees. We believe that improvements, such as those listed in Table 12, would make exchanges a more attractive option to regulators and industry participants. However, right now there is a great deal of uncertainty around exchanges, as they are largely untested on the ground. The degree to which they *should* be included in the “right mix of programs” for Greater Sage-Grouse will depend on evaluation of the existing exchanges over the next few years. If upcoming evaluations provide evidence that they meet the same high standards as banks and provide successful conservation outcomes, then exchanges should become a large part of the mix of mitigation programs for Greater Sage-Grouse.

Sector	Shortcomings	Suggested Improvements
Industry	Not legally defensible	Develop to meet USFWS standard/ mechanism for approval
	For-Profit Focus	Make program accountable to regulators for achieving and proving net benefit
Non-industry	Temporary credits	Incentivize permanent credit generation and purchase
	Low pricing that undermines other programs	Set price floor for credits

Table 12. Suggested Improvements to Habitat Credit Exchanges

V. AREAS FOR FUTURE RESEARCH AND INVESTIGATION

Using private lands to compensate for impacts on public lands

One issue of concern that repeatedly arose in our conversations was that the programs that have been approved and are being developed all engage private land in compensatory mitigation while a majority, if not all, of the impacts are (or will be) occurring on public land. Federal and state agencies are exploring options for mitigation to occur on public lands as well; however it is unclear what outcomes we may see in the future in this regard. It would be important to know if compensating on only private lands will be enough for maintaining the sage-grouse and to have an idea of what mitigation on public lands might look like.

Supply of land for compensatory mitigation

Our investigation did not include looking at the supply for adequate conservation and recovery areas for Greater Sage-Grouse. This will depend greatly on where the habitat is, who owns it, and who is willing to manage or restore it for sage-grouse. It is obviously a very important question in considering the development of any compensatory mitigation program.

Incentivizing avoidance as a program goal

An interesting point that multiple interviewees brought up is that the ultimate goal of any compensatory mitigation program should be to incentivize avoidance. The argument here is that being required to provide compensatory mitigation should be expensive enough for industry to make them be more cautious about developing in areas where they will have to destroy habitat in the first place. This could be considered a more long-term goal of compensatory mitigation programs, yet some would argue that the goal of these programs should be what they claim to be; i.e. compensating for *unavoidable* impacts to sage-grouse habitat. This issue aligns with other points of concern brought up about compensatory mitigation programs more generally. The concern with these programs is that it will be too easy to compensate and those involved will lose sight of the first two steps of the mitigation hierarchy: avoidance and minimization³⁵. It will be important to investigate the role compensatory mitigation programs can play in incentivizing avoidance and to elaborate on ways that programs can be adequately designed to accomplish effective compensatory mitigation without reducing the focus on avoidance and minimization of impacts.

Establishing a level playing field

Most of the non-industry professionals we spoke with emphasized the need for a level playing field between all compensatory mitigation programs in order to accomplish a net gain for the species. Part of this level playing field can be achieved by establishing consistent guidelines for crediting methodology. The USFWS is also seen by many of our interviewees as being responsible for ensuring all programs meet the same high standard, which would also contribute to the level playing field all programs would have to operate on. However, the main concern expressed was in the pricing of credits. The concern is that without a level playing field, some credit-generating entities may be able to produce lower quality, cheaper credits and undercut the prices for higher quality, more expensive credits yet provide the same offset for

³⁵ See the USFWS Greater Sage-Grouse Range-wide Mitigation Framework (2014) for full explanation of the hierarchy in the context of GSG mitigation (p. 6 of Framework)

permittees. It will be important to investigate the ways in which this difficulty could be ameliorated, especially if programs are continuing to operate without the species being listed.

Discrepancies among states factoring into mitigation strategies

Our exploration into this topic was cursory at best. We would strongly encourage further investigation into state contexts and how these relate with neighboring states. Any level of analysis for a compensatory mitigation program, whether local, state, or regional, must take into account the different attitudes, regulations, and preferences of state agencies.

VI. RECOMMENDATIONS FOR COMPENSATORY MITIGATION FOR GREATER SAGE-GROUSE CONSERVATION

Keep the conversation going.

Our research shows that there is a desire by industry representatives to be included in collaborative program development efforts. Regulators and others directly involved in mitigation program development and administration seem equally interested in communicating the science behind standard-setting. Based solely on the interest of interviewees in speaking with us on this project, it is essential to get the big players in this field in the same room talking about desired structure and design of programs and regulations. Workshops, conferences, and summits around this subject could go a long way to keep the conversations alive.

Don't underestimate the power of regulatory drivers.

It is clear that the demand for compensatory mitigation programs is being driven by state and federal regulations and requirements. Regulators and those working on mitigation in the field need to recognize this fact, especially while the sage-grouse is still a candidate species. Pilot testing can only go so far in terms of conservation on the ground, and in order to scale efforts to include more developers, regulatory backing will need to be in place. There are still questions over whether state or federal agencies are the appropriate entities to provide oversight and how those two scales of oversight should overlap.

Set consistent standards, metrics, and policies.

In recognizing that other mitigation options besides banks are proliferating, and especially that there is a demand from all sides for multiple mitigation options, the USFWS should work toward setting standards that clearly apply to all mitigation options. This would enable USFWS approval of other programs. If it is possible to set a high standard for a consistent crediting methodology that can be used across programs, then that could incentivize industry participation and simplify accounting and monitoring for program administrators. Also, states should try to coordinate policies to provide a level backdrop to each of these mitigation options. However, program developers and regulators should keep in mind that while the standards should be consistent, they should also take into account differences in habitat across the ground.

Emphasize characteristics of design and implementation over exact mechanisms.

The results of our conversations show that most regulators, NGO employees, and industry are not necessarily tied to one compensatory mitigation mechanism. Rather, each interviewee

tended to stress components that were more or less attractive in terms of meeting a high standard for conservation or incentivizing their participation in a program. We feel that there are very productive conversations to be had that leverage commonalities around program components. While focusing on mechanisms could drive a bigger wedge between developers and regulators, pivoting the conversation toward program characteristics could result in more transparent programs that still meet a high standard.

VII. KEY CONCLUSIONS

Through this project, we attempted to address elements of uncertainty in the field of sage-grouse compensatory mitigation. We investigated 1) the scope of the demand by industry for compensatory mitigation options and 2) how compensatory mitigation programs should be structured. We found that the demand for credits is based on: expected regulation and/or requirements for compensatory mitigation; cost of programs (time and money); and the particular characteristics of available options. We also found significant overlapping preferences for program components between industry and non-industry interviewees. The greatest areas of agreement were that compensatory mitigation programs should engage all stakeholders in meaningful dialogue, have well-designed crediting methodology, and be able to focus on priority habitat. In addition to meeting the USFWS Conservation Banking Guidance, any program should also include these components. The most important takeaway of this exercise is that characteristics of programs are more important than specific mechanisms.

We also assessed types of programs available based on our own criteria and based on our interviewees' perceptions. We found clear preferences for certain types of programs among our industry and non-industry interviewees. In order to address how different types of programs may be improved to be more attractive to industry, regulators, and administrators we suggest ways each program could include the above-mentioned components. We also emphasize that a mix of programs will be required in order to achieve effective compensatory mitigation for GSG. We found that banks should play the largest role in compensatory mitigation for sage-grouse, with in-lieu fees and habitat credit exchanges filling in the gaps to achieve mitigation across the sage-grouse range.

ACKNOWLEDGEMENTS

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APPENDICES

The Appendices provide the list of interview participants, the full list of questions we used for each group of participants, and the complete responses for selected questions presented in our results and considered in the discussion.

APPENDIX I. PHONE INTERVIEWEES

Bean, Michael. Department of the Interior. Phone Interview. 1 April, 2015.

BLM Representative. Phone Interview. 30 March, 2015.

BLM Representative. Phone Interview. 10 April, 2015.

Brodnax, Sara. Environmental Defense Fund. Phone Interview. 20 March, 2015.

Budd, Bob. WY Wildlife and Natural Resource Trust. Phone Interview. 26 March, 2015.

Culver, Nada. The Wilderness Society. Phone Interview. 18 March, 2015.

Clark, Alan. Utah DNR. Phone Interview. 2 April, 2015.

Ginger, Shauna and Drue Deberry. USFWS. Phone Interview. 23 March, 2015.

Hemmen, Travis. Westervelt Ecological Services. Phone Interview. 19 March, 2015.

Holst, Eric. Environmental Defense Fund. Phone Interview. 23 March, 2015.

Industry representative. Phone Interview. 17 March, 2015.

Industry representative. Phone Interview. 25 March, 2015.

Industry Representative. Phone Interview. 25 March, 2015.

Industry representative. Phone Interview. 26 March, 2015.

Government Official. Phone Interview. 31 March, 2015.

Jensen, Tom. Holland and Hart Representative. Phone Interview. 14 April, 2015.

Lamb, Jen. TNC Representative. Phone Interview. 3 April, 2015.

Lyons, Jim. Department of the Interior. Phone Interview. 10 March, 2015.

Manes, Rob. TNC Representative. Phone Interview. 23 March, 2015.

Manes, Stephanie. Common Ground Capital. Phone Interview. 25 March, 2015.

Oil and gas exploration company representative. Phone Interview. 3 April, 2015.

Preston, Matt. BLM Representative. Phone Interview. 20 March, 2015.

Sattelburg, Mark. FWS Field Supervisor. Phone Interview. 20 March, 2015.

TNC Consultant. Phone Interview. 17 March, 2015.

TNC Representative. Phone Interview. 31 March, 2015.

TNC Representative. Phone Interview. 9 April, 2015.

West, Madeleine. Colorado DNR. Phone Interview. 6 April, 2015.

APPENDIX II. INTERVIEW QUESTIONS

Energy Industry Interview Template

1. Is (name of firm) interested in securing compensatory mitigation credits for sage-grouse habitat?
 - a. *If yes:*
 - i. What is driving your interest in securing compensatory mitigation credits?
 - ii. Would you characterize your interest as high, medium, or low?
 - iii. Do you have a ballpark sense of how much acreage you think you would be interested in securing? In the next 5-10 years.
 - iv. Is there anything more you'd like to add about your level of interest - both on how interested and the range of acres you think you might consider?
 - b. *If no:* Can you please explain what contributes to the company's lack of interest?
2. Is (name of firm) engaged in any activities right now related to compensatory mitigation for impacts to sage-grouse habitat?
 - a. *If yes:*
 - i. Please explain the nature and structure of those activities.
 - ii. Does the involvement in these activities meet (name of firm's) mitigation needs for sage-grouse habitat?
 - iii. What components of said activities make them attractive?
 - iv. What, if any, deficiencies do you see in these approaches?
 - v. What, if anything, would make these activities more attractive or useful?
 - b. *If no,* is this because compensatory mitigation programs do not exist, or because there is there a lack of interest in pursuing compensatory mitigation programs?
 - c. What are other reasons for not pursuing compensatory mitigation options?
3. From (name of firm's) perspective, what would the ideal compensatory mitigation option look like?
 - a. What types of regulatory assurances would incentivize industry interest in compensatory mitigation?
 - b. What other characteristics of sage-grouse compensatory mitigation options would you find of most interest? e.g. purchase of credits transfers liability, compensatory mitigation dollars are directed to the highest priority habitat, credits yield permanent protection of habitat.
 - c. Are there components of a potential bank or other program that would preclude (name of firm) from participating or make it less attractive?
 - d. Are there compensatory mitigation mechanisms such as conservation banks, in-lieu fee programs, permittee-responsible mitigation or habitat credit exchanges that you are more or less inclined to pursue?
 - e. Has your firm had experience relating to mitigation programs for other species that affects your opinion here?
 - f. What role do you think the U.S. Fish and Wildlife Service, BLM, conservation organizations, and/or the private sector can be playing to support the incentives and specific mechanisms you have identified? "For example, development of template

banking instrument, development of other templates, adoption of a crediting methodology, training, pilot project)?

4. From (name of firm's) perspective, how do state level initiatives (that is to say their programs and policies) affect the establishment of compensatory mitigation programs?
5. How does the possibility of the greater sage-grouse being listed as an Endangered Species affect your interest in securing compensatory mitigation credits?
6. Does the Congressional rider barring implementation of sage-grouse regulation affect your interest in this type of program?
7. Are there other issues we have not discussed that you feel are relevant to (name of firm's) participation in sage-grouse habitat conservation banking?
8. Would you be willing to conduct a follow-up interview (either by phone or e-mail) if we have additional questions over the coming weeks?
9. Is there anybody else you know of that we should talk to? Would you be willing to send an introductory email to them?

Other Participant Interview Template

1. What mechanisms/programs and incentives are currently being employed (both proposed and approved) to encourage compensatory mitigation action for the greater sage-grouse and/or Lesser prairie chicken? (for example banks, in-lieu fee, permittee-responsible, habitat credit exchanges, other?).
 - a. What are the pros and cons of these approaches being employed?
 - b. Do you feel that these mechanisms/programs meet a high standard for compensatory mitigation?
 - i. If no, how do you think they could be improved?
 - ii. *(if they mention non-permanent protection/durability)* If no, do you think that, if approved, they could undermine future, permanent protection investments in compensatory mitigation such as banks?
 - iii. What do you consider to be a high standard for compensatory mitigation?
2. Are there other types of mitigation programs that you think should be considered for the greater sage-grouse?
 - a. What do you think is the best type of mitigation program for sage-grouse?
 - b. What compensatory mitigation program components is it most important for these programs to include - such as permanent or long-term conservation, predictability for the regulated community, etc.
3. For those mechanisms or approaches you feel meet a high standard for compensatory mitigation, what role do you think U.S. FWS, BLM, and conservation organizations can be playing to support the incentives and specific mechanisms (for example, banking) you have identified?
4. Have industry or other development interests expressed interest in having available compensatory mitigation options?
 - a. *If so*, have they expressed a preference for or against any specific mechanisms (for example banks, in-lieu fee, permittee-responsible, habitat credit exchanges)
 - b. Do you think there is a demand for sage-grouse bank credits from industry?
 - c. What general categories of industry have expressed interest? (e.g. oil and gas, mining, commercial or residential development)
 - d. How is this demand currently being met?
5. From your perspective, how do state level initiatives (their programs and policies) affect the adoption of compensatory mitigation programs?
6. Are there other issues we have not discussed that you feel are relevant to the establishment of compensatory mitigation programs with high standards for sage-grouse habitat conservation?
7. Would you be willing to conduct a follow-up interview (either by phone or e-mail) if we have additional questions over the coming weeks?
8. Is there anybody else *in industry* you know of that we should talk to? Would you be willing to send an introductory email to them?

Government Employee Interview Template

1. What mechanisms/programs and incentives are currently being employed – both proposed and approved – to encourage compensatory mitigation action for Greater Sage-Grouse (e.g., banks, in-lieu fee, permittee-responsible, habitat credit exchanges, other)?
 - a. What are the key characteristics of these mechanisms or programs?
 - b. What are the pros and cons of the models in the view of FWS?
 - c. Do you feel that these mechanisms/programs meet a high standard for compensatory mitigation?
 - i. *If no*, how do you think they could be improved?
 - ii. *(if they mention non-permanent protection/durability) If no*, do you think that, if approved, they could undermine future, permanent protection investments in compensatory mitigation such as banks?
 - iii. What do you define as a “high standard for compensatory mitigation”?
2. *If conservation banks were not mentioned*: Do you think that conservation banks would be an appropriate model for compensatory mitigation for sage-grouse?
 - a. Why?
 - b. What are the pros and cons of this mechanism in the view of FWS?
3. Have industry or other development interests expressed interest in having available compensatory mitigation options?
 - a. *If so*, have they expressed a preference for or against any specific mechanisms (for example banks, in-lieu fee, permittee-responsible, habitat credit exchanges)
 - b. Do you think there is a demand for sage-grouse bank credits from industry?
 - c. What general categories of industry have expressed interest? (e.g. oil and gas, mining, commercial or residential development)
 - d. How is this demand currently being met?
 - e. Does the Congressional rider barring implementation of sage-grouse-related regulation affect demand for the establishment of compensatory mitigation options for sage-grouse?
 - i. *If not*, why not?
4. If FWS were to support the establishment of a conservation banking program or individual banks for sage-grouse, how would such a program be structured?
 - a. What key characteristics would such banks have, for example permanent conservation, additionality, etc.?
 - b. What regulatory assurances or other incentives would FWS likely provide to incentivize project proponents to purchase credits?
 - c. What mechanism would FWS likely utilize to give mitigation bankers regulatory certainty that credits generated pre-listing would be applicable post-listing?
 - d. What role do you think U.S. Fish and Wildlife Service, BLM, conservation organizations, and/or the private sector could play to support the establishment of a banking program or individual banks (e.g., development of template banking instrument, development of other templates, adoption of a crediting methodology, training, pilot project)?
5. From your perspective, how do state level initiatives (their programs and policies) affect the adoption of compensatory mitigation programs?

6. Are there other issues we have not discussed that you feel are relevant to the establishment of compensatory mitigation programs with high standards for sage-grouse conservation?
7. Would you be willing to conduct a follow-up interview (either by phone or e-mail) if we have additional questions over the coming weeks?
8. Is there anybody else you know of that we should talk to? Would you be willing to send an introductory email to them?

APPENDIX III. FULL RESULTS

Item A: How do you define a high standard for compensatory mitigation?

- Government employee definitions:
 - Program precludes species listing as threatened or endangered.
 - Program stresses avoidance.
 - Meets USFWS standards for mitigation (5).
 - Program has credible basis for quantifying impacts and mitigation results and a mechanism for periodic review.
 - Program is durable and consistently measures the cost of credits and debits in a way that provides cost certainty to industry.
 - Program has advanced mitigation, has been proven to work, and shows a correlation between the impact and the offset measure.
- Other non-industry interviewee definitions:
 - High standard for banks is USFWS standard; the standard for non-banks depends on the species being targeted.
 - Program uses best possible science, is robust in its calculations, and deals with the notion of risk.
 - Program leads to net gain for the species, creates a baseline pool of habitat to site conservation actions on, and incites a significant enough cost to incentivize avoidance.
 - Program offset should be directly related to the impact, tracking should be in place, and mitigation should provide “full protection” for the species in question.
 - Program uses good science, consistent quantification methods, and advanced implementation, and it transfers liability to the entity impacting habitat.
 - Program meets USFWS standards for mitigation (2).
 - Program uses good, reliable, transparent science; accurately characterizes habitat; uses vigorous monitoring; and has adaptive management.
 - Program has advanced implementation, produces permanent conservation, and matches impact with offsets in terms of both quantity *and* quality of habitat.

Item B: What are the respective pros and cons of each of these [compensatory mitigation] programs?

Banks		Habitat Credit Exchanges	
Pros	Cons	Pros	Cons
permanent easement (3) financial and regulatory assurance (3) certainty in cost (3) high level of confidence in mitigation effectiveness/scientifically defensible (6) heavily monitored and regulated/ high standards, accountability (5) transfer of liability/responsibility (2) more transparency (3) mitigation done in advance/concurrently(3) protection for reversals(1)	Service area could exclude valuable habitat (4) concern with mitigating on private land only for impact on public land (1) complex and expensive in time and money-might exclude smaller actors(5) needs a regulatory mechanism to drive demand(1) too easy, undermines objective of avoidance/min first (1) limited flexibility over where and when (1) in one central area, natural events could wipe out, difficult to scale up (3)	more transparency (1) can do calculation in advance of cost(1) good accountability (1) scientifically defensible(1) ability to look at large landscape scale impacts and benefits (4) theoretically cheaper, lowers cost with same benefit(2) flexible, many options for landowners and industry (2) rolling enrollment instead of permanent focus (1) allows more people to be involved (3) uses banking standards (2) certainty (1)	not done on continuous land, anybody can do it (2) may not meet banking standard (1) credits not necessarily permanent (4) uncertainty-sound science, additional, durable(3) finding land difficult (3) less certainty mitigation will work (1) too cheap or price uncertain/easy may undermine (3) never been tested so difficult to compare or evaluate (5) too much flexibility (1)

Table 13. Pros and Cons for Banks and Habitat Credit Exchanges

In-Lieu Fee Programs		Permittee-Responsible Programs	
Pros	Cons	Pros	Cons
<p>those who run in-lieu fee programs have a mission to benefit the species (1)</p> <p>typically well-administered (1)</p> <p>allows project-by-project approach (1)</p> <p>protection for reversals(1)</p> <p>good accountability (1)</p> <p>good tracking of credits and debits (1)</p>	<p>difficult to establish fee prices (2)</p> <p>impossible to guarantee same level of protection as banks/low or variable standards (3)</p> <p>high degree of variation in offsets and impact matching (1)</p> <p>mixed record of success (1)</p> <p>little or no transparency (2)</p> <p>not always timely (2)</p> <p>doesn't allow private funds or investment(1)</p> <p>weak accountability(1)</p>	<p>agreement is between two parties rather than a larger group (1)</p> <p>Industry would prefer to be able to negotiate their own deal (1)</p>	<p>negotiations make it difficult to predict requirements and costs (2)</p> <p>monitoring often not enforced (1)</p> <p>rarely timely (1)</p> <p>no protection for reversals (1)</p> <p>less certainty in where and when mitigation will happen (1)</p> <p>mixed record of success(2)</p> <p>no transparency(1)</p> <p>industry has to do the monitoring and maintenance (2)</p>

Table 14. Pros and Cons for In-Lieu Fees and Permittee-Responsible Compensatory Mitigation

Item C: What program components do you find most of interest and (for industry participants only) which would preclude your company from participating in a compensatory mitigation program?

Response Group	Important Program Components
Non-industry representatives only (18 respondents)	duration of mitigation matches impact (5); calculating cost well and before mitigation action (2); verification methods in place (3); adaptive management (3); consistent application of standard and metrics (2); additionality (3); durability on public lands; works on landscape scale (2); advanced implementation; mitigation on highest value habitat (2); shared risk between government and private sector; rigorous; liability transferred from industry to third party; takes into account government programs and policies; outreach; transparency (3); monitoring (2); incentivizes avoidance (3); permanence; financial assurances; clarity in definition of duration of impact; crediting methodology based on best available science (9); accounts for risk that mitigation fails;
Industry representatives only (5 respondents)	funds maximized for work on the ground as opposed to overhead costs (3); certainty of what actions firm will need to take (1); not-for-profit entity administers program (3); diverse scientists involved (1)
Both groups	cost certainty for industry (3 from each group); flexibility (3 non-industry, 2 industry); regulatory certainty (1 non-industry, 3 industry); including industry in program development (2 in each group); simple (1 non-industry, 3 industry); certainty of mitigation effectiveness (1 non-industry, 4 industry)
Response Group	Program Components Precluding Participation
Industry representatives (5 respondents)	program run by for-profit entity with significant overhead costs (2); high cost (2); unclear derivation of cost (2); lack of regulatory assurances (3); no provisions for incidental take (2); lack of transparency in science (1); not legally defensible (1); industry not involved in development (1); different approach to compensatory mitigation in every state (1); program cannot “scale up” (1)

Table 15. Program Components of Most and Least Interest

Item D: What roles could the FWS, BLM, states, conservation organizations, and the private sector be playing to support the establishment of compensatory mitigation mechanisms that meet a high standard?

All interviewees of the three groups responded to this question.

Respondents:	Government Officials	Industry Representatives	Other Interviewees (NGOs)
Role of:			
FWS	provide regulatory assurances (2) no role if not listed (1) establish clear guidelines(2) approve programs (2) establish preference for banks (1) Identify where to restore(1) show some flexibility (1)	oversight on projects and management of funds (2) provide regulatory assurances (1) recognize use of in-lieu fee programs(1) recognize other conservation measures implemented (1) allow for public process in reviewing programs (1)	consultant for the state(1) establish what states need to provide (1) allow states to take jurisdiction(1) enforcement(3) expedite weeding out of ineffective approaches (1) standard-setting(5) control in how mitigation is deployed(1) approve programs (1) determine obligations (2) ensure mitigation is addressing impact (2) ensure mitigation is creating net benefit (1) enforcement(1) Standard-setting(3) modeling programs (1) acts as landowner (1) expedite weeding out of ineffective approaches (1) create demand (1)
BLM	help in the development of programs (1) regulate activities (3) establish clear guidelines (2) run pilot projects (2) player as a landowner (1)	ensure correct application (1) support through RMPs(1) recognize in-lieu fees (1) recognize other conservation measures (1) be flexible on which programs are available(1) partner with states (1)	support CM options (1) provide on-the-ground expertise (2) require compensatory mitigation (1) review/consent role (1) take a responsibility to meeting the needs of the species (1)
States	draft banking framework and get approval from FWS(1)		
NGOs	hold BLM accountable (1) act as co-facilitators (1) establish preservation areas (1) think at large scale (1) take higher risk action(1) develop consistent crediting methodology (2) third-party role (2) run programs (3) provide science (2)	can manage in-lieu fee funds/administer programs (2) third-party oversight (1) provide unbiased science (1) advocate (1)	be a resource for FWS (1) supply and communicate science (6) implement programs/hold easements (5) advocate (2) provide third party oversight (4) look at the big picture to inform conservation(2) co-facilitating between actors (1)
Private Sector	help infuse a level of realism and rationalism into programs (1)	participate equally with other parties and design and implementation (1)	involvement in coming up with systems that are workable for them (1)

Table 16. Roles of the FWS, BLM, NGOs, states, and the private sector