
Colorado Habitat Exchange

Exchange Manual



Version 1.2

Updated: Sept 2015

Deleted: 1

COLORADO HABITAT EXCHANGE

The Colorado Habitat Exchange is endorsed and used by the following organizations.



For information and questions about the Colorado Habitat Exchange, please contact:

Terry Fankhauser	Madeleine West	Ted Toombs
Colorado Cattlemen's Association	CO Department of Natural Resources	Environmental Defense Fund
Arvada, CO	Denver, CO	Boulder, CO
303-431-6422	303-866-3311 ext. 8666	970-290-2031
terry@coloradocattle.org	madeleine.west@state.co.us	ttoombs@edf.org

COLORADO HABITAT EXCHANGE MANUAL INTRODUCTION

The Colorado Habitat Exchange Manual (Exchange Manual) contains materials necessary for understanding and participating in the Colorado Habitat Exchange (Exchange). The primary audience is current and potential *participants* in the Exchange. The Exchange Manual defines consistent direction for specific technical and policy considerations that arise during the generation and sale of *credits*, determination of *debts*, and management of the Exchange. The Exchange Manual is subject to future revision with approval from the *Oversight Committee* based on analysis and consultation.

EXCHANGE MANUAL CONTENTS

Section 1: Exchange Overview	Provides an overview of the objectives, scope and primary participants of the Exchange.
Section 2: Exchange Elements	Summarizes the primary elements that enable consistent application of the Exchange by all participants. These include: <ul style="list-style-type: none"> 2.1 Exchange Governance 2.2 Metrics, Management & Site Selection 2.3 Addressing <i>Additionality</i> 2.4 Demonstrating <i>Effectiveness & Durability</i> 2.5 Managing Risk
Section 3: Exchange Operations	Defines the specific steps, roles and timing related to: <ul style="list-style-type: none"> 3.1 Generating Credits 3.2 Purchasing Credits 3.3 Adaptively Managing the Exchange
Appendix A: Glossary	Defines key terms used throughout the Exchange Manual. Terms are italicized on first use in this document.
Appendix B: Forms and Instructions	List of forms and associated guidance for Exchange participants.
Appendix C: Guiding Principles	The full set of principles used to guide design and development of the Exchange.
Appendix D: Estimation of Mineral and Split Estate Development Risk	Supporting documentation and rationale used to derive estimates of the risk of <i>split estate</i> development on participating properties.
Appendix E Dynamic Offsets	Supporting documentation and rationale exploring various considerations of using <i>dynamic offsets</i> .

EXCHANGE TOOLS & DOCUMENTS

Several tools and documents are used to describe and operationalize the Exchange. The primary tools and documents are summarized in Figure 0.1 and available on the Exchange Website (forthcoming) or through the *Exchange Administrator*.

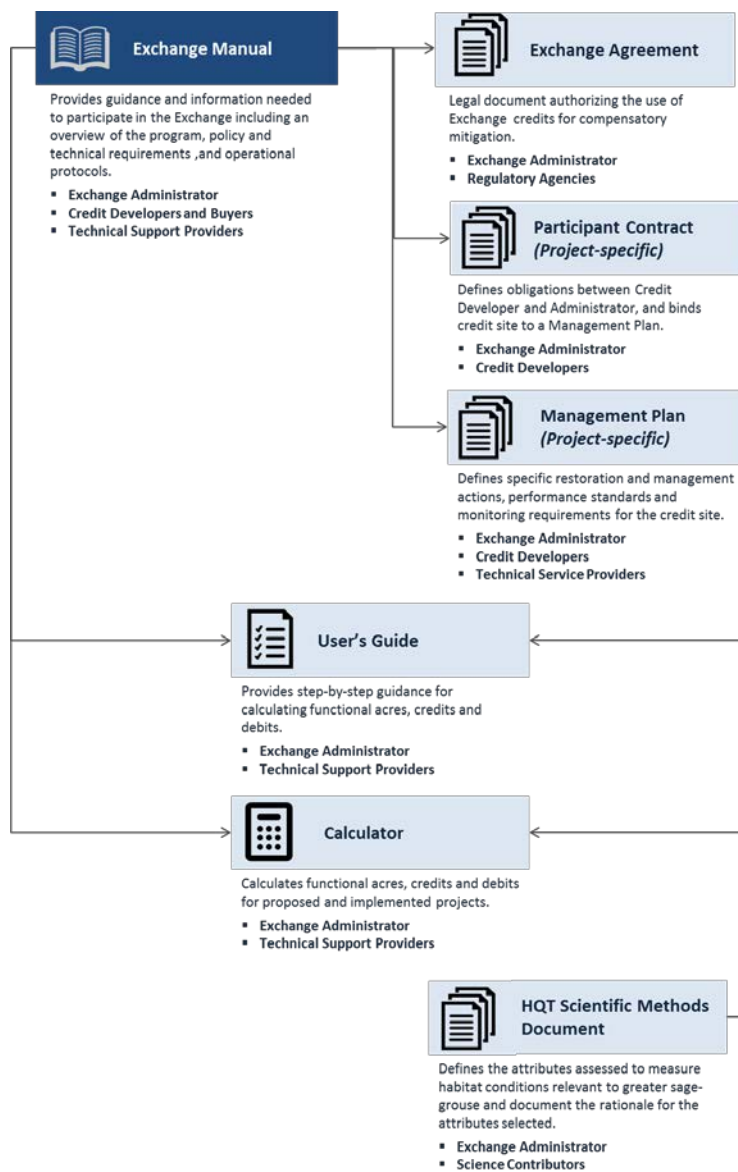


Figure 0.1 Primary Exchange Tools and Documents

ACKNOWLEDGEMENTS

The development of the Exchange was guided by a Working Group made up of knowledgeable and dedicated individuals and stakeholders. The Working Group consists of representatives from Environmental Defense Fund, Colorado Department of Natural Resources, Colorado Cattlemen’s Association, Colorado Parks & Wildlife, Partners for Western Conservation and Colorado Oil & Gas Association. The guidance, insight and support of the individuals on the Working Group has been essential to ensuring the Exchange is aligned with the needs of key constituents and is a viable means for species recovery.

The Exchange incorporates design, organization and content from documents developed by Environmental Incentives, LLC, Willamette Partnership and Environmental Defense Fund, among others. In particular, the Exchange Operations were adapted from the Klamath Tracking and Accounting Program Pilot Operational Protocol Handbook Version 1.0. Thus, in accordance with the Open Content License from that document: This content was created in part through the adaptation of procedures and publications developed by the Willamette Partnership (www.willamettepartnership.org) and Environmental Incentives, LLC (www.enviroincentives.com) but is not the responsibility or property of the Willamette Partnership.

Open Content License

The Exchange has developed all protocols, quantification tools, and associated products with an eye toward transparency and easy extension to address multiple environmental issues and geographic regions. As such, permission to use, copy, modify and distribute this publication and its referenced documents for any purpose and without fee is hereby granted, provided that the following acknowledgement notice appears in all copies or modified versions: “This content was created in part through the adaptation of procedures and publications developed by Environmental Defense Fund, Environmental Incentives, LLC, and Willamette Partnership, but is not the responsibility or property of any one of these entities.”

TABLE OF CONTENTS

COLORADO HABITAT EXCHANGE MANUAL INTRODUCTION	I
SECTION 1 EXCHANGE OVERVIEW.....	3
1.1 GOALS & PRINCIPLES OF THE COLORADO HABITAT EXCHANGE	4
1.2 EXCHANGE AREA	5
1.3 ORGANIZATIONAL STRUCTURE & ROLES.....	8
1.4 EXCHANGE OPERATIONS OVERVIEW.....	9
SECTION 2 EXCHANGE ELEMENTS	12
2.1 PROGRAM GOVERNANCE	16
2.1.1 GOVERNANCE ROLES.....	16
2.1.2 INTEGRATION WITH STATE POLICY	19
2.1.3 REGULATORY PREDICTABILITY & ESA.....	20
2.1.4 PARTICIPANT CONFIDENTIALITY	21
2.1.5 ACCOUNTING SYSTEM OVERVIEW	22
2.1.6 PURCHASING CREDITS	23
2.2 MANAGEMENT ACTIONS, METRICS & SITE SELECTION.....	25
2.2.1 SERVICE AREAS	25
2.2.2 METRICS.....	26
2.2.3 MANAGEMENT ACTIVITY TYPES	28
2.2.4 MITIGATION CREDITS & CONSERVATION CERTIFICATES	28
2.2.5 CREDIT SITE ELIGIBILITY.....	30
2.3 ADDRESSING ADDITIONALITY	33
2.3.1 BASELINE.....	33
2.3.2 PUBLIC LANDS & OTHER DESIGNATIONS.....	34
2.3.3 PARTNERING WITH PUBLIC FUNDS.....	35
2.3.4 STACKING CREDIT TYPES.....	35
2.3.5 INTEGRATION WITH CCA/CCAAS.....	35
2.4 DEMONSTRATING EFFECTIVENESS & DURABILITY	37
2.4.1 PROJECT DURATION.....	37
2.4.2 SITE PROTECTION	38
2.4.3 FINANCIAL & MANAGEMENT MECHANISMS TO ENSURE PROJECT PERFORMANCE	39
2.5 MANAGING RISK & UNCERTAINTY	40
2.5.1 CREDIT RELEASE	40
2.5.2 VERIFICATION	43
2.5.3 RESERVE ACCOUNT.....	47
2.5.4 FINANCIAL ASSURANCES	48

2.5.5 REVERSALS & USE OF THE RESERVE ACCOUNT AND FINANCIAL ASSURANCES	50
SECTION 3 EXCHANGE OPERATIONS	53
3.1 GENERATING CREDITS.....	55
3.1.1 SELECT & VALIDATE PROJECT SITE	56
3.1.2 IMPLEMENT PROJECT & CALCULATE CREDIT	58
3.1.3 VERIFY CONDITIONS.....	60
3.1.4 REGISTER PROJECT & RELEASE CREDITS.....	62
3.1.5 TRACK & TRANSFER CREDITS.....	63
3.2 PURCHASING CREDITS FROM THE EXCHANGE.....	65
3.2.1 INDICATE INTEREST	66
3.2.2 DETERMINE CREDIT NEED.....	66
3.2.3 ACQUIRE CREDITS.....	68
3.2.4 TRACK & TRANSFER CREDITS.....	69
3.3 ADAPTIVELY MANAGING THE EXCHANGE.....	70
3.3.1 UPDATE PROTOCOL & TOOLS	71
3.3.2 PRIORITIZE INFORMATION NEEDS & GUIDE MONITORING	73
3.3.3 REPORT EXCHANGE PERFORMANCE	74
3.3.4 SYNTHESIZE FINDINGS.....	74
3.3.5 IDENTIFY & ADOPT EXCHANGE IMPROVEMENT RECOMMENDATIONS.....	75
3.3.6 ENGAGE STAKEHOLDERS	76
SECTION 4 APPENDENCIES	78
APPENDIX A: GLOSSARY	79
APPENDIX B: FORMS, TEMPLATES & TOOLS	86
APPENDIX C: GUIDING PRINCIPLES OF THE COLORADO HABITAT EXCHANGE....	89
APPENDIX D: RISK OF MINERAL AND SPLIT ESTATE DEVELOPMENT.....	90
APPENDIX E: DYNAMIC OFFSETS.....	91
APPENDIX F: MONITORING AND ADAPTIVE MANAGEMENT - PHASE 1 & PHASE 2	94

SECTION 1 EXCHANGE OVERVIEW

Greater sage-grouse (*Centrocercus urophasianus*) populations have declined drastically from their historic numbers; the greater sage-grouse now occupies approximately 56 percent of its historic range¹. Mule deer (*Odocoileus hemionus*) numbers and distribution has also been declining throughout the West for several decades. The expansion of energy facilities and other land use changes impact sagebrush habitat has the potential to reduce the amount and quality of habitat for both of these species.

By [the close of the federal fiscal year](#) 2015, the US Fish & Wildlife Service must decide whether to propose to list the greater sage-grouse under the Endangered Species Act. If listed, this species has the potential to have greater economic impact than any other species in the western United States. Similarly, mule deer licenses support thousands of jobs and have an economic impact in Colorado of about \$1.8 billion annually².

The Colorado Habitat Exchange (Exchange) is a pro-active, collaborative solution that can help push the greater sage-grouse and mule deer populations toward recovery, while enabling the continuation of energy development and agriculture, both of which are vital to the Colorado economy. The Exchange provides positive incentives for energy companies and other land developers to minimize and mitigate potential impacts to species' habitat and for landowners to improve conditions and expand habitat for the species. In addition, the Exchange helps energy companies and agriculture to comply with current and future regulations. By generating quantifiable conservation outcomes, the Exchange significantly improves the effectiveness and efficiency of conservation investments and results in more meaningful and longer-lasting benefits.

1.1 GOALS & PRINCIPLES OF THE COLORADO HABITAT EXCHANGE

The goal of the Colorado Habitat Exchange is to improve the long-term viability of greater sage grouse in Colorado. The Exchange is a market-based mechanism for mitigating impacts (*debts*) from energy and land development. Debts are *offset* through the funding of conservation (*credits*), resulting in habitat improvements for the species. The Exchange tracks the benefits from specific conservation actions and reports the overall progress from implementation throughout Colorado. The Exchange provides the market infrastructure and tools to support transactions that result in *net benefit* for species. These tools include the *Habitat Quantification Tools* (HQTs), *registry* and *Online Tracking Platform*³ along with the protocols (i.e., processes and rules detailed in this Exchange Manual) to ensure conservation benefits are measurable and repeatable.

Deleted: and mule deer

With near-term goals focused primarily on greater sage-grouse ~~habitat~~, the long-term vision of the Exchange is to support the *conservation, enhancement and restoration* of Colorado's natural resources with the intent of expanding the Exchange to address other species and water quality related issues in the future. [Work is currently underway to complete a mule deer HQT to allow the Exchange to function for mule deer habitat.](#)

Deleted: and mule deer

¹ United States Fish and Wildlife Service (USFWS). 2013. Greater Sage-grouse (*Centrocercus urophasianus*) Conservation Objectives: Final Report. U.S. Fish and Wildlife Service, Denver, CO. February 2013.

² BBC Research and Consulting, "The Economic Impacts of Hunting, Fishing and Wildlife Watching in Colorado." Prepared for Colorado Division of Wildlife, September 2008.

³ An Online Tracking Platform is a product that is anticipated to be developed in the future. Until it is available for use, all operations are completed using the tools, forms and templates that are identified in this Exchange Manual can be obtained from the Exchange Administrator

GUIDING PRINCIPLES

The Exchange enables the conservation, enhancement and restoration of resilient ecosystems in a credible, rigorous and cost-effective way. It is designed to work within existing regulatory structures and constantly strive toward the following principles:

- Produce the highest quality conservation where it makes the greatest ecological difference;
- Foster transparency, accountability, credibility and continuous improvement; and
- Facilitate connections between *Buyers* and *Credit Developers* that put the greatest amount of resources towards measurable conservation outcomes while minimizing transaction costs.

These principles are meant to provide clarity and guidance in cases where the Exchange manual is silent or unclear.⁴

BENEFITS OF PARTICIPATION

Quantifying and reporting environmental benefits from conservation practices enables the following benefits to participants and stakeholders:

Credit Developers (including landowners, *aggregators* and *conservation banks*) are able to quantify the amount of environmental benefit (credits) created when implementing conservation practices. These credits can be sold to public and private Buyers seeking to improve and maintain habitat for greater sage-grouse in Colorado.

Deleted: and mule deer

Buyers can invest with confidence, knowing that credits are: 1) consistently defined, 2) useful in comparing the relative improvements across credit and *debit projects* to find opportunities for achieving the greatest environmental benefit, and 3) aligned with regulatory requirements to offset the impacts (debts) of development projects. This increases accountability with the general public, regulators and local constituents.

Local Constituents and Conservationists can understand how the actions of Credit Developers are helping to improve key habitats and address species goals. Transparent program-wide tracking and regional accomplishment reports can rally the community around making progress toward common goals.

1.2 EXCHANGE AREA

The Exchange currently covers the entire occupied range for greater sage-grouse in Colorado, as mapped by [Colorado Parks and Wildlife](#).⁵ The Exchange will also cover all mapped winter range for mule deer in Colorado west of Interstate 25. Figures 1.1 and 1.2 display the greater sage-grouse and mule deer habitat areas included in the Exchange. Credits are awarded for projects that create benefits for the covered species. Debits are accrued from impacts to habitat. The *exchange area* can be expanded to support additional conservation needs and to correspond with revisions to habitat and management maps in the future. See [Services Areas](#) (Section 2.2.1) for a full description of the Exchange *service areas*. The geographic scope of the Exchange will be updated over time.

Deleted: the Bureau of Land Management (BLM) as part of the National Planning Strategy for greater sage-grouse

Deleted: currently

Deleted: s

Deleted: greater sage-grouse and mule deer habitat

⁴ Additional principles used to guide the development of the Exchange can be found in Appendix C.

⁵ Colorado Parks and Wildlife GIS Group, Species Conservation Unit, Biologists, District Wildlife Managers and Researchers.

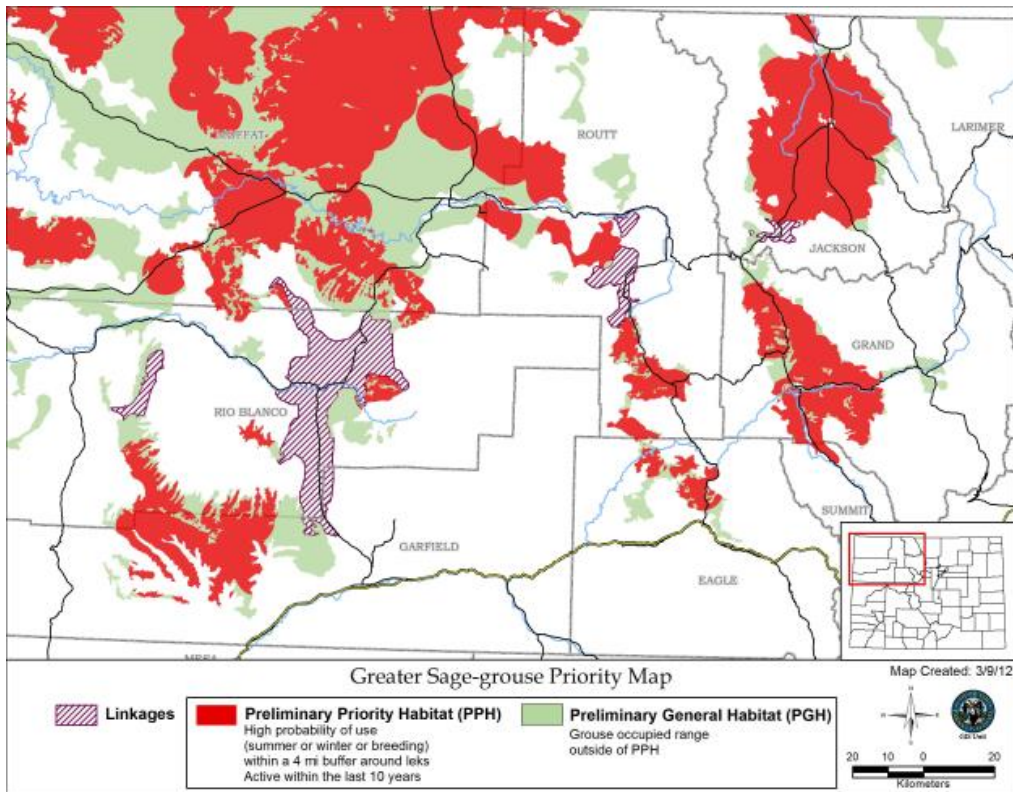


Figure 1.1: Exchange area of Colorado Habitat Exchange for greater sage-grouse

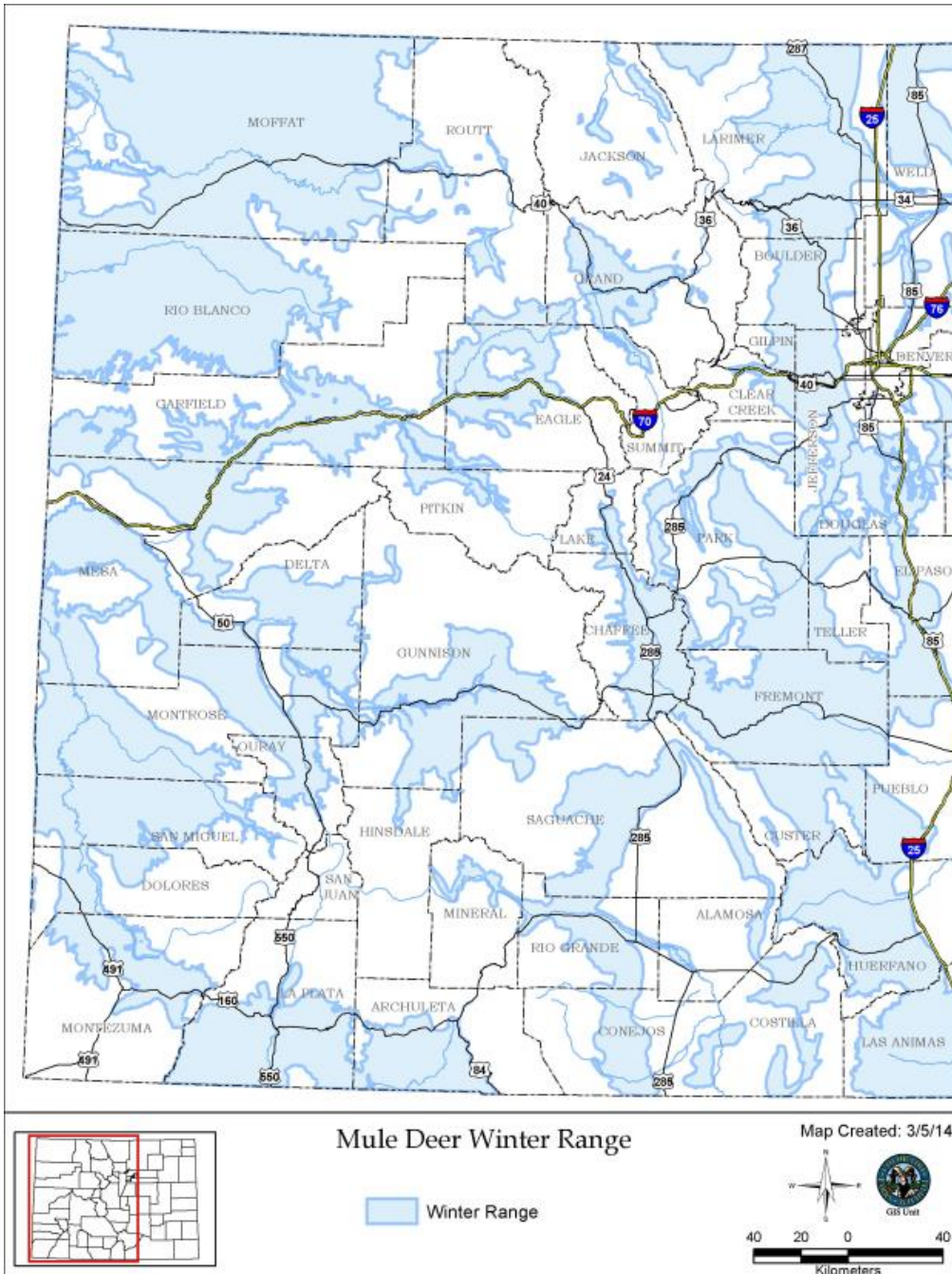


Figure 1.2: Exchange area of Colorado Habitat Exchange for mule deer

1.3 ORGANIZATIONAL STRUCTURE & ROLES

The organizational structure and interactions between the different participants in the Exchange are depicted in Figure 1.3, with a description of each participant described below the figure. Additional detail regarding the organizational structure is provided in [Governance Roles](#) (Section 2.1.1)

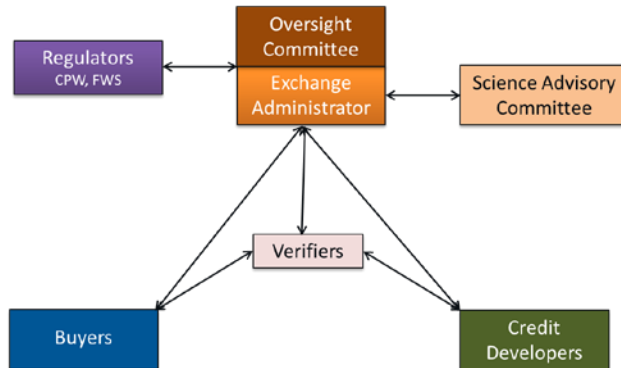


Figure 1.3: Organizational structure of the Colorado Habitat Exchange

Regulators: Agencies that authorize the use of credits generated through the Exchange for compensatory mitigation and ensure that the Exchange functions according to current law, policy and regulations.

Oversight Committee: Formal stakeholder group, including representatives from conservation interests, industry, agriculture and government, which is responsible for overseeing the operations of the Exchange and making management decisions.

Exchange Administrator: Manages the day-to-day operations of the Exchange, including facilitating and overseeing all credit generation and transaction activities. The Exchange Administrator ensures consistency, releases credits and reports results.⁶

Deleted: issues

Science Advisory Committee: Develops and manages biological standards for the species and its habitat and makes technical recommendations to the Oversight Committee through the Exchange Administrator.

Verifiers: Contractors or individuals that are certified by the Exchange Administrator to assess the accuracy of credit and debit calculations.

Credit Developers: Landowners who produce and sell credits in the Exchange. Credit Developers may also be bank facilitators (such as conservation banks) or other types of aggregators who work with multiple landowners to implement conservation projects, secure *financial assurances* and sell credits.

Buyers: Entities that purchase credits for mitigation or invest to meet other conservation objectives.

Technical Support Providers: Individuals and entities with technical expertise in conservation planning and project design, who understand how to use the Exchange tools and forms. Technical support providers may be hired by Credit Developers or Buyers to help design projects, use the HQTs to estimate

⁶ The Working Group may consider altering the organizational structure in the future to include a Permit Exchange Administrator that manages issues related to Buyers.

credits and debits and submit all required materials to the Exchange Administrator. The Exchange does not have a formal process to designate or certify a technical support provider.

1.4 EXCHANGE OPERATIONS OVERVIEW

This section provides an overview of the steps used to generate and *transfer* credits and for the Exchange Administrator to manage the program. These processes are defined in detail in Section 3 of this Exchange Manual. A list of the specific tools, forms and guidance for Exchange participants is included in Appendix B.



Figure 1.4: Overview of the process steps to generate and purchase credits

The steps for generating and transferring credits are depicted in Figure 1.4. Blue chevrons signify the steps undertaken to generate credits, green chevrons represent the steps to purchase credits, and the orange Track and Transfer connector represents the role of the Exchange Administrator who provides the platform for transactions to occur.

EXCHANGE CURRENCY

Credits are the primary currency of the Exchange. Credit consists of verified habitat value that is secured for the defined duration of the project through achieving the *habitat performance* defined in a project-specific *Management Plan* and providing financial assurances that ensure the durability of the *credit project*. Habitat value is defined in units of “*functional acres*,” which combines habitat quality (*function*) relative to optimal conditions and quantity (acres). See [Metrics](#) (Section 2.2.2) for a more detailed description of calculating functional acres and credits and [Mitigation Credits and Conservation Certificates](#) (Section 2.2.4) for more information on the specific components of both credit projects.

GENERATING CREDITS

The following steps outline the process to generate, verify and register credits from a credit project

1. **Select & Validate Site:** Credit Developers may select any project site on private or public land that provides benefit to greater sage-grouse habitat, as determined by the Exchange’s *credit site eligibility* (Section 2.2.5) requirements. The Credit Developer completes a Validation Checklist to determine whether eligibility requirements are met and submits a copy of this checklist to the Exchange Administrator for approval or rejection and commentary. This stage provides a screen to minimize participant investment and expenditures on projects that may not be eligible to generate credits.
2. **Implement & Calculate Credit:** Credit Developers designs the project, quantifies the expected number of credits using HQTs, implement conservation practices and refine calculations based conditions on on-the-ground.
3. **Verify Conditions:** All projects undergo third-party *verification* (Section 2.5.2) to confirm that protocols were followed correctly and projected credits are appropriately calculated, according to actual on-the-ground conditions.
4. **Register & Release:** Once a project has been verified, supporting documentation is submitted to the Exchange Administrator where it is reviewed for completeness before credits are registered and released to the Credit Developer’s account on the registry. Upon release, credits are given a unique serial number so they can be tracked over time.

Deleted: Issue

Deleted: issued

Deleted: issuance

5. **Track & Transfer:** Released credits are tracked by the Exchange Administrator and either transferred to Buyers or held in other accounts. After transfer, the Credit Developers is responsible for meeting reporting and verification requirements of each project for the duration of the project. Credit Developers and Verifiers confirm that *performance standards* are met and trigger *credit releases*, where applicable.

Deleted: Issued

ACQUIRING CREDITS

The following steps outline the process to purchase credits.

1. **Indicate Initial Interest:** Buyers become aware of the opportunity to participate in the Exchange, and contact the Exchange Administrator to provide basic information.
2. **Determine Credit Need:** When fulfilling a regulatory offset, Buyers work with the Exchange Administrator or Regulatory Agency to determine the service area, and the credit amount needed by determining *debit baseline* and estimating the anticipated *post-project* function of the debit site in accordance with the relevant regulatory instrument. The debit baseline is verified on the ground by a third-party verifier, who also reviews post-project calculations to confirm the estimated amount of credit needed. Both debit baseline and post-project baseline calculations may also be reviewed by the appropriate regulatory agency accepting exchange credits to satisfy regulatory requirements.
3. **Acquire Credits:** Buyers contact the Exchange Administrator, confirm needed credit quantities, and create an account on the registry. The price, terms and conditions are all set and agreed upon by the Credit Developer and Buyer, or Exchange Administrator. Buyers and Credit Developers must notify the Exchange Administrator once terms are in place so that the Exchange Administrator can transfer credits between accounts.
4. **Track & Transfer:** Credits listed on the registry are assigned unique serial numbers that identify the source of each credit, the HQT version used to estimate credits and the current owner, subject to all confidentiality provisions of the Exchange. Once credits are transferred, Buyers can use that information for internal and external reporting.

MANAGING THE EXCHANGE

The Exchange is managed by an Exchange Administrator, using a transparent and inclusive process to improve the efficiency and effectiveness of the Exchange over time. The Oversight Committee is responsible for adopting any changes made to the Exchange through a defined management process. This process follows the steps depicted in Figure 1.5 and more information can be found in Managing the Exchange (Section 3.3). More information on the roles of the Oversight Committee can be found in [Governance Roles](#) (Section 2.1.1).

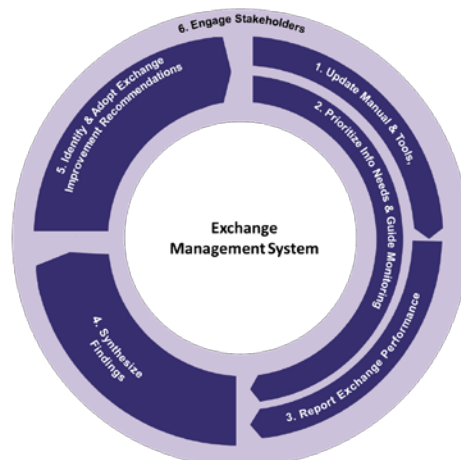


Figure 1.5 Overview of the Exchange Management System

1. **Update Manual & Tools:** Exchange Administrator, with approval of the Oversight Committee, updates the Exchange Manual, as well as tools, forms, and related guidance to ensure practical experience and new scientific information result in increased efficiency and effectiveness.
2. **Prioritize Information Needs & Guide Monitoring:** The Exchange Administrator, with approval of the Oversight Committee and with advice from the Science Advisory Committee, identifies and prioritizes research and *monitoring* needs, coordinates funding efforts, and oversees monitoring and research.
3. **Report Exchange Performance:** Exchange Administrator develops the Annual Performance Report to summarize debits, credits and habitat improvements achieved. Routine reporting of accomplishments is essential to ensure transparency and drive accountability.
4. **Synthesize Findings:** Exchange Administrator synthesizes relevant research, monitoring and operational findings to inform Exchange improvements. Synthesizing findings into information that is directly related to the operations of the Exchange is essential to inform management decisions. Incorporating the best available science and other new information into the Exchange and HQTs helps ensure the calculation of debits and credits improves project selection and design decisions as well as accountability.
5. **Identify & Adopt Exchange Improvement Recommendations:** Exchange Administrator develops operational and technical improvement recommendations which are reviewed and adopted as appropriate by the Oversight Committee to ensure the Exchange continues to operate efficiently and effectively over time. Creating and transparently adopting clear recommendations to improve the Exchange is the most critical step in the annual Exchange management process. The transparency of this adjustment process enables Credit Developers, Buyers and other stakeholders to participate in the process and gain knowledge of the reasoning for adjustments as adopted.
6. **Engage Stakeholders:** Throughout the year, the Exchange Administrator engages stakeholders to keep them informed of progress and solicit input for how to improve the Exchange. Consistent stakeholder engagement is necessary to ensure the Exchange operates efficiently, increases understanding, and facilitates accountability.

Deleted: under

Deleted: c

All of the steps described in this overview are defined in detail in Section 3. Section 2 summarizes the primary elements that enable consistent application of the Exchange by all participants.

SECTION 2 EXCHANGE ELEMENTS

This section of the Exchange Manual defines consistent direction for specific design elements that arise during the generation and sale of credits, determination of debits, and management of the Exchange. Table 2.1 below provides a summary of these Exchange elements for greater sage-grouse. Note that the Exchange will include specific elements for mule deer habitat credits in the future. This section provides additional detail on elements in the following chapters:

- 2.1 Exchange Governance;
- 2.2 Metrics, Management Actions & Site Selection;
- 2.3 Ensuring Additionality;
- 2.4 Demonstrating Effectiveness & Durability; and
- 2.5 Managing Risk.

Table 2.1: Summary of Exchange Elements

DESIGN ELEMENTS		CO HABITAT EXCHANGE SUMMARY
2.1 EXCHANGE GOVERNANCE		
2.1.1	GOVERNANCE ROLES	<ul style="list-style-type: none"> Exchange Administrator manages the Exchange with oversight from the Oversight Committee and support from the Science Advisory Committee
2.1.2	INTEGRATION WITH STATE POLICY	<ul style="list-style-type: none"> Buyers may follow one of two processes: <ul style="list-style-type: none"> Existing COGCC or DRMS process, with no required connection to the Exchange Integrated COGCC or DRMS process and Exchange processes used to calculate credit obligation
2.1.3	FEDERAL REGULATORY PREDICTABILITY	<ul style="list-style-type: none"> Designed to meet USFWS pre-listing mitigation guidance Relevant agencies, as signatories to the <i>Exchange Agreement</i> authorize use of Exchange credits for compensatory mitigation Integration with other regulatory mechanisms can provide incidental take protection
2.1.4	PARTICIPANT CONFIDENTIALITY	<ul style="list-style-type: none"> Exchange will seek to protect participant confidentiality while making information available based on Federal and Colorado laws
2.1.5	ACCOUNTING SYSTEM OVERVIEW	<ul style="list-style-type: none"> Annual confirmation of performance on credit sites Account for debits for each year of the debit project's stated duration Annual Exchange <i>adaptive management</i> process Written annual performance reports of Exchange compiled and distributed to regulators, exchange participants and the general public.
2.1.6	PURCHASING CREDITS	<ul style="list-style-type: none"> Credit transactions occur in advance of implementation of debit projects Flexible transaction mechanisms that may include direct purchase and Exchange Administrator assisted purchases
2.2 METRICS, MANAGEMENT ACTIONS & SITE SELECTION		
2.2.1	SERVICE AREAS	<ul style="list-style-type: none"> Must be located in one of five service areas and within <i>Priority Habitat Management Areas (PHMA)</i> or <i>General Habitat Management Areas (PGHMA)</i> mapped areas within the service areas; Service areas are a subset of the landscape covered by the full Exchange Area
2.2.2	METRICS	<ul style="list-style-type: none"> HQT measures quantity and quality of habitat at a site for greater sage-grouse in terms of functional acres at multiple spatial scales Credits are calculated by averaging functional acre change relative to baseline for seasonal habitat types for each <i>map unit</i>

Deleted: Preliminary

Deleted: PPH

Deleted: Preliminary

Deleted: Habitat

DESIGN ELEMENTS		CO HABITAT EXCHANGE SUMMARY
2.2.3.	MANAGEMENT ACTIVITY TYPES	<ul style="list-style-type: none"> Includes the following management activity types: 1) Conservation, 2) Restoration and 3) Enhancement
2.2.4	CREDIT & CERTIFICATE PROJECTS	<ul style="list-style-type: none"> Mitigation Credit Project: project that generates credits to offset debits Conservation Certificate Project: project that generates functional acres that benefit greater sage-grouse habitat and may increase the potential for future credit availability
2.2.5	CREDIT SITE ELIGIBILITY	<p>To be eligible to generate credits, project sites must:</p> <ul style="list-style-type: none"> Be designed to meet minimum HQT scores by the end of the credit project's duration Meet criteria to demonstrate there is not an elevated risk of development that would compromise the generation of credits Show evidence of site protection, financial assurances and additionality Be located within current Exchange Area and in relevant service area
2.3 ADDRESSING ADDITIONALITY		
2.3.1	BASELINE	<ul style="list-style-type: none"> Credit Baseline: Regional average site-scale function of 20% multiplied by local and landscape-scale function. In cases where site-scale function is less than 20% (e.g. restoration management activity types), actual site-scale conditions are used in place of the regional average) Debit Baseline: <i>Pre-project</i> habitat function
2.3.2	PUBLIC LANDS & OTHER DESIGNATIONS	<ul style="list-style-type: none"> Credits can be generated on public lands currently managed for conservation purposes, if additional benefit can be generated <u>and once mechanisms for federal agency generation have been developed</u>
2.3.3	PARTNERING WITH PUBLIC FUNDS	<p>Credits can be generated based on the additional benefit generated</p> <ul style="list-style-type: none"> Inside Contract: Allocation of credits proportionate to the private monetary contribution Outside Contract: Full credit for long-term extension or agreements following expiration of current contract
2.3.4	STACKING CREDITS	<ul style="list-style-type: none"> Credit Developers are able to generate and sell credits for different species if additional benefit generated
2.3.5	INTEGRATION WITH CCA/CCAAS	<ul style="list-style-type: none"> Credit Developers are able to generate and sell credits in combination with enrollment in CCA/CCAAs if additional benefit generated
2.4 DEMONSTRATING EFFECTIVENESS & DURABILITY		
2.4.1	PROJECT DURATION	<ul style="list-style-type: none"> Credit Projects: Minimum <i>term</i> of 10 years, up to perpetual; Duration is in 5 year increments after initial 10 year minimum term Debit Projects: Minimum is length of time project impacts habitat function and site has been remediated, up to perpetual Matching of duration: <i>Project duration</i> for credits must meet or exceed the duration of the debit project it is offsetting and can include either static or dynamic offsets
2.4.2	SITE PROTECTION	<ul style="list-style-type: none"> Site protection instrument or agreement required for both private and public lands documented in <i>Participant Contract</i> and <i>Management Plans</i> Includes written description of the legal arrangements (ownership, management and enforcement of any restrictions that will be used to ensure protection of a <i>credit project site</i>)
2.4.3	FINANCIAL & MANAGEMENT MECHANISMS	<ul style="list-style-type: none"> Mechanisms include Verification, <i>Reserve Account</i>, and Financial Assurances, as described in Managing Risk (Section 2.5)

DESIGN ELEMENTS		CO HABITAT EXCHANGE SUMMARY
2.5 MANAGING RISK		
2.5.1	CREDIT RELEASE	<ul style="list-style-type: none"> ▪ Conservation Management: A single credit release upon achieving performance standards and providing documentation to the Exchange Administrator ▪ Restoration Management: Multiple credit releases triggered by a combination of completing management actions and achieving performance standards ▪ Enhancement Management: Multiple credit releases triggered by achieving performance standards
2.5.2	VERIFICATION	<ul style="list-style-type: none"> ▪ Credit Sites: Before initial credit <u>release</u>, before increased credit releases, every 5th year, periodic spot checks (as warranted) and annual self-monitoring reports ▪ Debit Sites: Before implementation or project implementation, at time when debits are reduced or end and periodic spot checks (as warranted)
2.5.3	RESERVE ACCOUNT	<ul style="list-style-type: none"> ▪ Total contribution up to 11% which includes a 4% base contribution and a 7% split estate risk contribution when required ▪ Exchange Administrator evaluates reserve account balance at least once annually and may propose adjustments to be approved by the Oversight Committee
2.5.4	FINANCIAL ASSURANCES	<p>Financial assurances are defined in each <i>Participant Contract</i> with Credit Developers and can consist of:</p> <ul style="list-style-type: none"> ▪ Contract terms: such as financial penalties for intentional <i>reversals</i> and specific payment terms ▪ Financial instruments: such as <i>long-term stewardship funds</i> and performance bonds to ensure funds are available for the implementation and long-term management of each credit project
2.5.5	REVERSALS	<ul style="list-style-type: none"> ▪ Unintentional Reversals – Exchange Administrator withdraws credits from the reserve account to cover the invalidated credits at no cost to the Credit Developer; the Exchange Administrator uses the remaining funds in the project site's financial assurances to remediate the credit project or replace credits off-site to the degree possible; ▪ Intentional Reversals – Exchange Administrator withdraws credits from the reserve account to cover invalidated credits; the Credit Developer is responsible to fully replace all invalidated credits using the project site's financial assurances and must also pay a 10% administrative fee;

Deleted: issuance

2.1 PROGRAM GOVERNANCE

The following sections provide detail on the Exchange’s governance roles, integration with state policy, and integration with federal regulatory assurance mechanisms. This section also provides information as to how the Exchange ensures *participant confidentiality* and provides an overview of the annual accounting, reporting and adaptive management processes.

2.1.1 GOVERNANCE ROLES

The Exchange is a non-profit entity that is responsible for carrying out the operations and management as outlined in the Exchange Agreement and this Exchange Manual. The Exchange utilizes a governance structure that includes the Exchange Administrator, Oversight Committee and Science Advisory Committee to ensure the Exchange is managed consistently without causing uncertainty for regulators or participants. The Exchange’s Oversight Committee acts like a Board of Directors to oversee the operations of the Exchange. The Oversight Committee hires or contracts qualified staff to serve in the role of Exchange Administrator through a fair and transparent process, and also evaluates the qualifications and performance of the Exchange Administrator annually. The Exchange Administrator runs the day-to-day operations of the Exchange. A description of the key duties of each of these entities is provided below.

EXCHANGE ADMINISTRATOR

The Exchange Administrator executes daily management decisions based on authority granted in the Exchange Agreement and the direction provide by this Exchange Manual. The following table outlines the key responsibilities of the Exchange Administrator.

Table 2.2: Key Responsibilities of the Exchange Administrator

EXCHANGE ADMINISTRATOR KEY RESPONSIBILITIES	
Administration & Accounting	<ul style="list-style-type: none"> Manages day-to-day <i>Exchange operations</i> Manages all Exchange tools, guidance and forms Manages credit accounts and the ledger of credits and debits Reviews credit scores, and manages credit releases Manages reserve account and accounting of the overall net benefit of the Exchange Approve expenditure of conservation certificate project funds Makes adaptive management recommendations to Oversight Committee
Credit Developer & Buyer Engagement	<ul style="list-style-type: none"> Responds to inquiries of interest from Buyers and Credit Developers, connecting them to relevant resources Ensures any necessary additional outreach to Credit Developers and Buyers occurs
Reporting & Accountability	<ul style="list-style-type: none"> Develops an Annual Performance Report and Synthesis of Findings and provides documents to the Oversight Committee Brings Improvement Recommendations to the Oversight Committee Performs periodic quality control checks on information submitted by Verifiers and Exchange participants
Compliance and Enforcement	<ul style="list-style-type: none"> Signs the Exchange Agreement with FWS and other participating agencies Ensures programmatic compliance of the Exchange with relevant state and FWS policies Works with Credit Developers to implement corrective actions through <i>remedial action plans</i> when appropriate Enforces contract compliance and contract penalties in cases of intentional reversals
Financial & Contracting Support	<ul style="list-style-type: none"> Manages funds, contracts and partnerships for monitoring Confirms financial assurances are in place for credit projects Manages selection process and funds for conservation certificates May facilitate credit auctions or Request for Proposals for Buyers May administer contract payments between Buyers and Credit Developers

EXCHANGE ADMINISTRATOR KEY RESPONSIBILITIES	
Science & Technical Support	▪ Convenes the Science Advisory Committee as necessary, and at least annually
	▪ Receives Science Advisory Committee recommendations
	▪ Defines monitoring research questions to guide <i>biological monitoring</i> conducted
	▪ Certifies Verifiers
	▪ Confirms verification and monitoring process for credit and debit projects

OVERSIGHT COMMITTEE

The Oversight Committee is the formal, representative stakeholder group responsible for overseeing the operations of the Exchange, and making high-level Exchange management decisions. The current members of the Working Group at the time the Exchange Agreement is signed are responsible for convening the Oversight Committee. Once the Oversight Committee is formed, the Working Group will dissolve and the Oversight Committee will be the official body that provides guidance to the Exchange.

Figure 2.1 illustrates the proposed membership of the Oversight Committee, including 11 representatives total, comprised of both voting members and non-voting advisory members. Voting members will include two representatives from each of the following member groups: state agencies, landowners, commercial industry and environmental groups. Non-voting advisory members may include two representatives total from relevant federal agencies, and one representative from the Science Advisory Committee. The Oversight Committee will attempt to be consensus-seeking, however may reach a final decision when agreement is obtained by two-thirds of the voting members. Membership positions are voluntary staggered four-year terms, with renewal process to be determined.

This governance structure is established to broadly support oversight for multiple credit types. In the near-term the Exchange's focus is on greater sage-grouse and mule deer credits. Therefore the Oversight Committee will initially consist only of representatives from groups with a specific interest in these

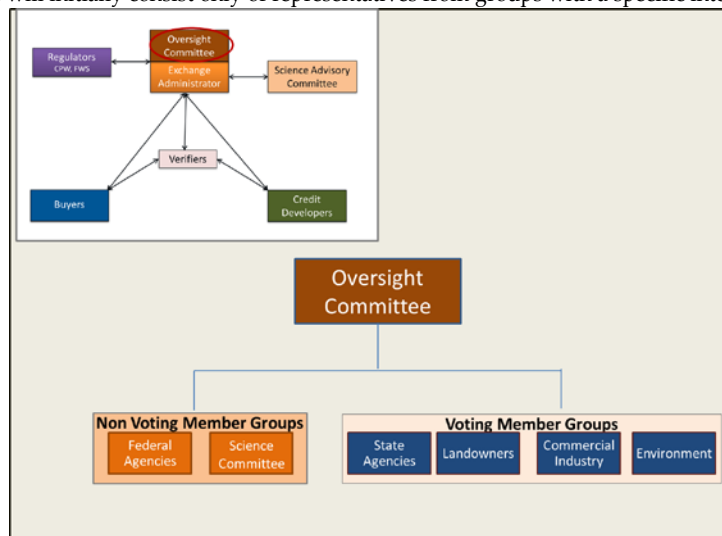


Figure 2.1 Oversight Committee Structure

species, including agricultural, energy, and environmental groups, as well as representatives from the Colorado Parks and Wildlife Agency (CPW), Colorado State Land Board, and federal agency representatives. As the Exchange broadens its scope in the future as described in Section 1 of the Exchange Manual, the representation in the Oversight Committee will be revisited and revised to ensure sufficient capacity to successfully govern diverse credit and debit types.

The Oversight Committee will meet at least once annually, and more frequently as necessary to fulfill its responsibilities and meet the needs of the Exchange. Once convened, the Oversight Committee is expected to draft bylaws to govern its processes. The Oversight Committee will be consensus seeking, and will draft specific decision-making processes as a part of its bylaws. The following table outlines key ongoing duties of the Oversight Committee.

Table 2.3: Key Responsibilities of the Oversight Committee

OVERSIGHT COMMITTEE KEY RESPONSIBILITIES	
Ensure Exchange Performance	<ul style="list-style-type: none"> Participates in negotiations with FWS and other participating agencies to amend the Exchange Agreement as necessary Evaluates annual reports from the Exchange Administrator that include assessment of the effectiveness of credit projects in relation to both species habitat and overall programmatic performance goals of the Exchange and provide reports to FWS and other participating agencies as necessary Executes annual audit, or contracts for the auditing of, the Exchange Administrator's finances and operations Determines if corrective actions are needed to ensure finances and operations are sufficiently in order for the operations of the Exchange
Oversee Adaptive Management	<ul style="list-style-type: none"> Discusses and adopts appropriate Exchange improvement recommendations provided by Exchange Administrator and participants
Provide Participant Oversight	<ul style="list-style-type: none"> Approves the Science Advisory Committee members Selects and trains a qualified Exchange Administrator

SCIENCE ADVISORY COMMITTEE

The Science Advisory Committee consists of expert scientists whose purpose is to inform the development and revision of HQTs for species and habitat included in the current scope of the Exchange, and to inform monitoring efforts across the Exchange service areas. The Science Advisory Committee also contributes a scientific perspective to setting the recovery objectives that influence and guide Exchange transactions.

The Science Advisory Committee will initially be composed of a minimum of five qualified scientists with recognized knowledge and expertise on the species and habitat.

The Oversight Committee approves members of the Science Advisory Committee, who serve staggered four-year terms with a renewal process to be determined. Specific duties of the Science Advisory Committee include:

- Compile and analyze the latest and best-available science regarding the *covered species* and *covered habitat*;
- Make recommendations to the Oversight Committee through the Exchange Administrator regarding how the new information may be used to update the HQT through the Exchange's adaptive management process; and
- Assist the Exchange Administrator with making changes to the HQT through the adaptive management process.

2.1.2 INTEGRATION WITH STATE POLICY

The Exchange will be coupled with Colorado state policy through implementation of existing Colorado Oil and Gas Conservation Commission (COGCC) Rules. COGCC rules require that when a new oil and gas location is proposed in Sensitive Wildlife Habitat (SWH) or a Restricted Surface Occupancy Area (RSO) CPW shall consult with the operator, the surface owner and the COGCC prior to approval of a Form 2A to identify possible conditions of approval (COGCC Rule 306.c and Rule 1202.b.). The purpose of consultation is to allow the COGCC to determine whether conditions of approval are necessary to minimize adverse impacts from the proposed oil and gas operations.

During consultation on new oil and gas facilities with COGCC and energy companies, CPW makes recommendations regarding measures that may be implemented to avoid and minimize impacts. CPW may also request that energy companies offset their unavoidable adverse impacts. One option for energy companies needing to offset impacts is to use the Exchange's HQT and operational processes to calculate the impact and credit obligation (debits) and to purchase the corresponding amount of Exchange credits.

Deleted: for greater sage-grouse or mule deer

The Exchange will be available to oil and gas operators who have a mitigation obligation to fulfill as a result of their consultation with CPW on a Form 2A, or as part of a Comprehensive Drilling Plan (CDP) or Wildlife Mitigation Plan (WMP) under COGCC Rule 1202.d. If an operator chooses to use the Exchange to fulfill a mitigation obligation, below is the process they would follow:

- Operator submits a Form 2A Oil and Gas Location Assessment with the debit obligation listed as a Best Management Practice (BMP).
- Operator includes in the submission to COGCC of their Form 2A an intent to purchase letter signed by the Exchange Administrator.
- CPW consultation comments on the Form 2A indicate that the debit obligation satisfies the requirements of the COGCC 1200-Series rules.
- COGCC approves the Form 2A with the debit obligation included as a BMP..
- Operator will provide to COGCC notice of transfer (purchase of credits) on or before the time that a Form 42 Field Operations Notice is filed by the operator, which is the 48-hour Notice of Construction of a New Location..
- COGCC will notify the exchange administrator, who will determine whether or not the operator is in compliance with their commitment. The exchange administrator will notify COGCC and CPW if the commitment has been met, but it will be the role of the exchange administrator to enforce the contract to purchase credits. COGCC may take administrative or enforcement action for violations of the Form 2A, including failure to fulfill the obligations of an approved BMP.

CO House Bill 1298 and State Wildlife Mitigation Plans (WMPs)

In 2008, House Bill 1298 was signed into Colorado law, which requires the COGCC to consult with CPW when evaluating permits for new oil and gas facilities. CPW is provided an opportunity to recommend site-specific measures to avoid, minimize and mitigate impacts to wildlife from oil and gas development activities. The amended COGCC Rules also provide energy companies the option of entering into a Wildlife Mitigation Plan (WMP) in order to streamline consultations with CPW. A WMP is a landscape-scale mitigation plan created in consultation with CPW to address the development of multiple facilities over several years. In a WMP, energy companies commit to implementing specific Best Management Practices (BMPs) designed to avoid and minimize impacts. To offset unavoidable adverse impacts to wildlife, CPW typically requests that energy companies also commit to perform or fund off-site mitigation activities like habitat improvements or conservation easements to benefit impacted species.

Using the Exchange for compensatory

mitigation provides energy companies the benefits of streamlined permitting by foregoing the standard offset mitigation negotiations with CPW through the use of standardized credit and debit calculations and acquiring mitigation offsets that have durability and increased value because credits meet the *pre-listing mitigation* guidance of USFWS, as described in the USFWS Greater Sage Grouse Range-Wide Mitigation Framework and provide *regulatory assurances* that credits will retain their value in a post-listing environment. Operators that do not use the Exchange to address credit obligation for greater sage-grouse will be subject to standard consultations with CPW per existing COGCC Rules and some uncertainty associated with site-specific negotiations to select and implement suitable offsets to address unavoidable impacts. These companies may also be subject to additional regulation and consultation requirements with USFWS and BLM, depending on the species.

Table 2.4: Potential options to integrate COGCC processes and the Exchange

OPTION	DESCRIPTION	REGULATORY ASSURANCES
1	Existing COGCC process <ul style="list-style-type: none"> No required connection to Exchange 	<ul style="list-style-type: none"> Fulfills HB 08-1298 requirement of State. CPW recommends but State does not necessarily require avoidance, minimization and mitigation due to technical and economic feasibility thresholds in COGCC Rules. No USFWS assurances.
2	Integrated COGCC process with the Exchange used to calculate offsets <ul style="list-style-type: none"> CPW and energy company use the HQT for credit obligation calculations and requirements 	<ul style="list-style-type: none"> Fulfills HB 08-1298 requirement of State; Credit obligation is calculated through HQT and COGCC authorizes use of Exchange to fulfill obligation. USFWS assurances provided by meeting pre-listing mitigation standard.

Mining Regulations

The Colorado Division of Reclamation, Mining and Safety (DRMS) regulates mining and reclamation activities at coal, metal, aggregate and other minerals mines. Their primary objective is to review mining and reclamation permit applications and to inspect mining operations to make sure that reclamation plans are being followed. CPW consults with DRMS and the mine operator in order to make recommendations on measures to avoid, minimize, and mitigate impacts to wildlife resources. If a mining company chose to utilize the Exchange as a means to offset unavoidable impacts, they would include a notice of transfer letter in the reclamation plan, as part of the permit application.

2.1.3 REGULATORY PREDICTABILITY & ESA

The Exchange is designed to meet the criteria outlined in the Greater Sage Grouse Range-wide Mitigation Framework⁷ and qualify as pre-listing mitigation for the greater sage-grouse, a candidate species. The Exchange aspires to provide regulatory certainty to Buyers and Credit Developers. The Exchange intends for *pre-listing mitigation* credits to be treated as measures to minimize and mitigate the impact of incidental take, should the greater sage-grouse be listed. Therefore, the Exchange is pursuing a pre-listing agreement with the USFWS, the BLM and Colorado Department of Natural Resources (CDNR) through the Colorado Habitat Exchange Agreement (Exchange Agreement).

Deleted: entering into

The Exchange Agreement is the legal document based on template Conservation Bank Enabling Instruments and signed by Regulators and the Exchange Administrator. The Exchange Agreement

⁷ US Fish and Wildlife Service. Greater Sage-Grouse Range-Wide Mitigation Framework Version 1.0. September 3, 2014. Page 5. http://www.fws.gov/greatersagegrouse/documents/Landowners/USFWS_GRSG%20RangeWide_Mitigation_Framework20140903.pdf

describes the legal obligations of Regulators, the Exchange Administrator and the Oversight Committee under the Exchange. The Exchange Agreement is expected to undergo a review and approval process for Regulators to authorize the use of credits purchased through the Exchange for compensatory mitigation. By signing the Exchange Agreement, Regulators signify that the efforts undertaken through the Exchange to facilitate conservation of the greater sage-grouse will be recognized as compensatory mitigation, whether the species is listed or not.

In addition to meeting the needs for compensatory mitigation, the Exchange is designed to be integrated with other regulatory mechanisms that will provide additional regulatory assurances for incidental take protection to Credit Developers and Buyers. Neither conservation banks nor credit exchanges authorize, in and of themselves, incidental take of listed species. The Exchange can be used in combination with regulatory mechanisms, such as a *Candidate Conservation Agreement* (CCA) or *Candidate Conservation Agreement with Assurances* (CCAAs) before a species is listed, or a Safe Harbor Agreement or incidental take permit, such as those issued under an approved *Habitat Conservation Plan* (HCP), once a species is listed. It is the intent of the Exchange and participants to seek to ensure the Exchange can be integrated with existing or future agreements or permits that provide regulatory assurances to Buyers and Credit Developers in the Exchange such as CCAs, CCAAs, and if listed, incidental take permits.

Innovation to the Conservation Banking Model

The Exchange is based on the conservation banking model that has been used by certain USFWS Regions and state wildlife agencies since the 1990s. The Exchange leverages the conservation banking focus on performance-based outcomes and works to create efficiencies and increase the amount of on-the-ground benefit per dollar invested, (or environmental return on investment). Innovations include:

- **Establishment of a Programmatic Streamlined Approach** facilitated by a focused Exchange Administrator operating in accordance with the steps and requirements defined in this Exchange Manual, reduces the time, cost and uncertainty to generate authorized credits when compared to the arduous process of gaining approval for a conservation bank.
- **Accounting for Functional Acres** rather than simply the surface area of credit sites improves the comparability between debits and credits. Conservation banks account for some aspects of function through site selection and mitigation ratios. As a result, the mitigation ratios used in the Exchange may be lower than those used in conservation banks while providing an equivalent or greater increase in functional habitat.
- **Use of a Programmatic Reserve Account** of credits, which is not a feature of conservation banks, directs investment into producing additional credits and reduces, but does not eliminate, the reliance on financial assurances. As a result, more capital is invested in on-the-ground functional habitat than in financial instruments, enabling the species to collect the interest rather than a financial institution. See *Managing Risk* chapter for more information.

2.1.4 PARTICIPANT CONFIDENTIALITY

The Exchange recognizes that some Credit Developers may be concerned about the public disclosure of personal information. However, it may be necessary for federal and state agencies to evaluate individual actions in order to properly assess the effectiveness of the Exchange to reduce threats and provide net benefit to the species. The Exchange will treat all information pertaining to participants as confidential

and proprietary. Due to the regulatory nexus between the Exchange and state and federal agencies, the Exchange will make available information based on applicable Federal and Colorado laws.⁸

DISCLOSURE OF INFORMATION

In the event that a request for information is made to the Exchange Administrator that would result in the possible disclosure of personal or commercial confidential information, the Credit Developer will be notified of the request. Additionally, the Credit Developer will be provided the opportunity to state, orally or in writing, why a release of the requested information would constitute a clearly unwarranted invasion of privacy or cause substantial harm to their commercial interest. All signatories to the Exchange Agreement will provide a notice when a Freedom of Information Act (FOIA) or a Colorado Open Records Act request for records concerning the Exchange is made and allow the Exchange Administrator or Credit Developer to prepare a notification requesting that any confidential personal or commercial information be withheld. All parties will protect confidentiality to the extent allowed by law, regulation and guidance.

2.1.5 ACCOUNTING SYSTEM OVERVIEW

The Exchange employs a rigorous accounting system that operates on an annual cycle. Credits and debits are tracked according to reporting and verification standards. See [Project Duration](#) (Section 2.4.1) and [Verification](#) (Section 2.5.2) for more information on credit and debit project reporting and verification standards. The Exchange's accounting system includes the following key components:

- **Exchange registry** that is used for tracking credits, debits and transactions.
- **Adaptive management** process that is executed annually to ensure continuous improvement of the Exchange's design and implementation over time.
- **Annual Performance Reports** that use registry outputs and the adaptive management process to report on the total number of verified credits and debits each year and other information needed by state and federal regulatory agencies.

REGISTRY

All credits and debits are tracked in the Exchange's registry, which transparently tracks the [release](#) and transaction of credits through unique serial numbers. Each credits relation to the specific debit project it is used to offset is also tracked. This tracking facilitates annual reporting, verifies the Exchange always generates more credits than debits in any given year, and provides information necessary for effective adaptive management. The Exchange Administrator may use a basic registry in the initial years of implementation. Depending on transaction volume and cost, the Exchange Administrator may elect to use an established environmental registry (e.g., Markit) to efficiently track a large volume of transactions.

Deleted: issuance

ADAPTIVE MANAGEMENT

The Exchange Administrator uses an annual process to engage stakeholders and execute monitoring and research to identify, recommend and implement improvements to the Exchange Manual and HQTs. The process used is described in greater detail in [Managing the Exchange](#) (Section 3.3).

⁸Colorado Statute 24-72-204 (3) (a) (XXI) All records, including, but not limited to, analyses and maps, compiled or maintained pursuant to statute or rule by the department of natural resources or its divisions that are based on information related to private lands and identify or allow to be identified any specific Colorado landowners or lands; except that summary or aggregated data that do not specifically identify individual landowners or specific parcels of land shall not be subject to this subparagraph

ANNUAL PERFORMANCE REPORTS

The Exchange Administrator will use the registry and adaptive management process to report annually on the performance of the Exchange. The report will include aggregated descriptions of properties and actions sufficient to confirm compliance and habitat performance. To the maximum extent possible under federal, state, and local law, the Exchange will protect against disclosure of personal and confidential information from participants (See Confidentiality Section 2.1.4 for more information). See Managing the Exchange (Section 3.3) for detailed information about the annual reporting process.

Information that will be included in each report may include the following:

- Total debit and credit projects statewide enrolled in the Exchange;
- Total number of debits and credits generated by projects and net benefit produced;
- Total number of debits and credits by credit type generated by Service Area;
- Total number of functional acres impacted and offset by seasonal habitat type and by Service Area;
- Total number of credits held in the reserve account;
- Any credit reversals that occurred over the course of the year and a brief summary of the method and status of replacement of lost credits; and
- Anticipated improvements to be made to Exchange operations identified through the adaptive management process. .

2.1.6 PURCHASING CREDITS

The Exchange is intended to be used in the context of state and federal policies that require the full mitigation hierarchy sequence (e.g. avoidance, minimization, compensatory mitigation). Credits are used to offset debits that occur when direct or indirect impacts cannot be avoided or minimized.⁹ It is envisioned that debit projects which are permitted through federal and state agencies will use the Exchange to purchase credits that fulfill their compensatory mitigation obligations in advance of the implementation of the debit project. Those Buyers who purchase credits to fulfill regulatory requirements for compensatory mitigation are responsible for meeting all requirements of the relevant permitting process through the state, BLM, or other federal agency. Buyers must provide documentation of the permit stipulations and debit project design documents to the Exchange Administrator to ensure proper identification of the relevant service area, the total amount of credits needed to offset the debit project and the total duration of the debit project. This allows the Exchange Administrator to ensure that the debit project is appropriately offset with a credit project (see [Service Areas](#) Section 2.2.1 and [Project Duration](#) Section 2.4.1) and transparently track and report on all credit transactions and net benefit generated.

CREDIT TRANSACTION MECHANISMS

Multiple mechanisms may be used for Buyers to purchase credits. Table 2.5 (next page) describes some of these mechanisms. The Exchange Administrator will work with Credit Developers and Buyers to determine the most appropriate transaction mechanism. Regardless of the transaction mechanism used, credits must be generated and verified prior to finalizing and completing a credit transfer. See [Verification](#) (Section 2.5.2) and [Managing the Exchange](#) (Section 3.1.5) for more information.

Deleted: [Step D5.2](#)

Deleted:

Deleted: 3

⁹ US Fish and Wildlife Service. Greater Sage-Grouse Range-Wide Mitigation Framework Version 1.0. September 3, 2014. Page 6.

Table 2.5: Typical Transaction Mechanisms under the Exchange

TRANSACTION MECHANISM	DESCRIPTION
Auction or Request for Proposal	Buyer or Exchange Administrator solicits bids or proposals for credits or credit projects that meet defined criteria;
Direct Credit Purchase	Buyer or Exchange Administrator purchases verified credits from the registry or works directly with a Credit Developer to develop credits.
Select from Credit Project List	Buyer selects a credit project from a list of eligible credit projects that have not yet been implemented but are expected to meet Buyer criteria.

Transaction Fees

The Exchange Administrator will collect *transaction fees* to fund the administration of the Exchange. Administrative costs range from the evaluating and releasing credits to credit projects and verification of credit and debit projects throughout their duration, to executing the Exchange’s annual adaptive management process. The Exchange Administrator will work with the Oversight Committee to set an initial transaction fee structure and amount. The Exchange Administrator maintains and publishes the fee structure and amounts, and regularly reviews the fee structure and amounts through the Exchange adaptive management process. Changes to the fee structure and amounts must be approved by the Oversight Committee.

2.2 MANAGEMENT ACTIONS, METRICS & SITE SELECTION

The Exchange provides a system to target credit and debit projects to areas that provide the greatest benefit and reduce the greatest threats to greater sage-grouse given jurisdictional and other constraints. Recognizing that areas across land ownership types may provide the greatest benefit to the species, Credit Developers may select credit project sites on private and public lands that meet the Exchange's requirements related to service areas, metrics, management activities, mitigation credits and conservation certificate product types.

2.2.1 SERVICE AREAS

Service areas are mapped geographic sub-regions with unique ecological or political significance where credits are tracked and able to be reported. They protect species and sub-populations by ensuring that conservation benefits are located an appropriate distance from impacts to the species. Each credit is labeled with the service area where it was created. The following sections outline distinct service areas used by the Exchange based on variations in geography, climate, system connectivity, regulatory precedent and population needs.

GREATER SAGE-GROUSE

Credit projects to benefit greater sage-grouse habitat under the Exchange must fall into one of five service areas depicted in Figure 2.1. [The Colorado Habitat Exchange's five service areas are based on the priority habitat map developed by CPW¹⁰. \(See HOT Methods document section 3.1 for additional information.\)](#)

The BLM defines [Priority Habitat Management Areas \(PHMA\)](#) as areas that have been identified as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas include breeding, summer and winter concentration areas. This data is a combination of mapped greater sage-grouse occupied range, production areas and modeled habitat (summer, winter, and breeding). [PHMA](#) incorporates areas of high probability of use (summer or winter, or breeding models) within a 4-mile buffer around leks that have been active within the last 10 years. [General Habitat Management Areas \(GHMA\)](#) is defined by BLM as greater sage-grouse occupied range outside of [PHMA](#), which consist of isolated areas with low activity.

[Within these service areas, credit projects to benefit habitat must also be located within PHMA and GHMA, according to the maps developed by BLM as part of the National Planning Strategy.¹²](#) Credits are eligible to offset debits within the same service area, with the exception of lek sites. Impacts to lek sites are not eligible to be offset with credits from the Exchange. The potential need and requirements to trade across service areas will be a specific consideration of the first year of programmatic adaptive management. See [Accounting System Overview](#) (Section 2.1.5) for more information.

Moved down [1]: Within these service areas, credit projects to benefit habitat must also be located within the Preliminary Priority Habitat (PPH) and Preliminary General Habitat (PGH) areas, according to the maps developed by BLM as part of the National Planning Strategy. ¹¹

Deleted: ¶

Deleted: PPH

Deleted: PPH

Deleted: PGH

Deleted: PPH

Moved (insertion) [1]

Deleted: the Preliminary Priority Habitat (PPH)

Deleted:)

Deleted: Preliminary General Habitat (P

Deleted: areas

¹⁰ Priority habitat map is available online:

http://cpw.state.co.us/Documents/Maps/WildlifeSpecies/Birds/GrSG_PPH_PG_H_20120309_Final.pdf

¹² Colorado Parks and Wildlife GIS Group, Species Conservation Unit, Biologists, District Wildlife Managers and Researchers. Service Areas are subject to change to correspond with future revisions to BLM maps.

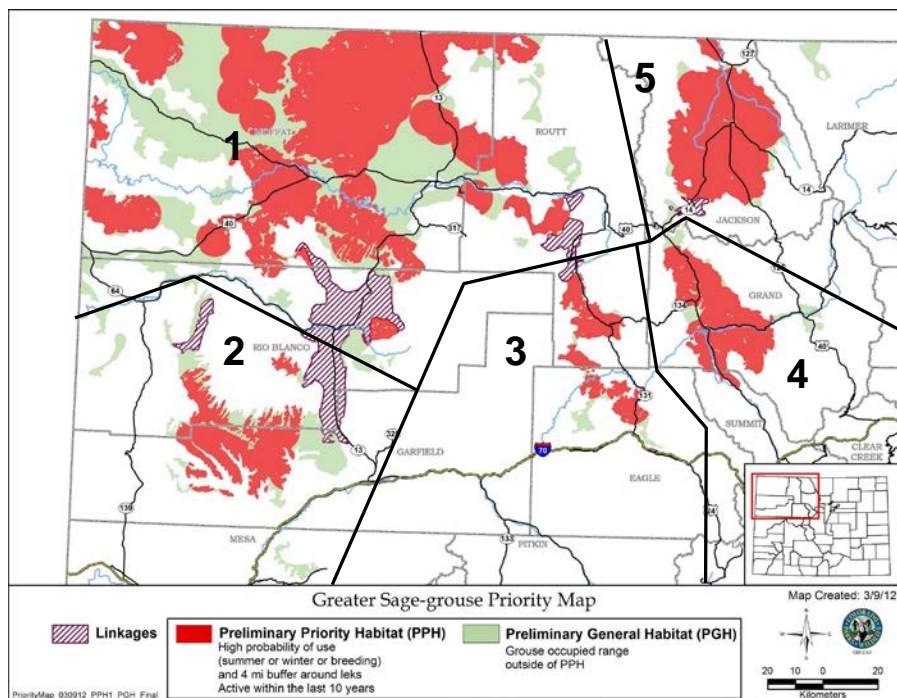


Figure 2.2: Colorado Habitat Exchange Greater-sage grouse service areas

2.2.2 METRICS

The Exchange uses the HQT to calculate functional acres for credit and debit projects. The term “function” refers to the role of the habitat in providing life history requirements for greater sage-grouse at a variety of spatial scales, including the *landscape, local, and site scales*. The calculation of functional acres includes the direct and indirect effects of anthropogenic disturbance. Each seasonal habitat type for greater sage-grouse (i.e., breeding, summer and winter) is accounted for independently. Accordingly, the HQT calculates functional acres for each seasonal habitat type.

The HQT measures habitat quality at the following spatial scales:

- **Landscape** (2nd order): Habitats required by subpopulations
- **Local** (3rd order): Habitat required by greater sage-grouse throughout the year
- **Site** (4th order): Vegetation attributes relevant to greater sage-grouse

See the Greater Sage Grouse Habitat Quantification Tool Methods Document for a complete description of the HQT measurement methods and approach to determine habitat function.

FUNCTIONAL ACRE CALCULATION

Functional acres are calculated within “map units,” which are subdivisions of the project area with similar vegetative characteristics. To calculate functional acres for a map unit, the landscape-scale and local-scale habitat function for each seasonal habitat type is multiplied by the site-scale habitat function to produce the overall habitat function for each seasonal habitat type. This product is then multiplied by the acreage of the map unit to produce the functional acres for each seasonal habitat type. This process is repeated for each map unit in the project area. For more information on calculating functional acres,

please see the HQT Methods Document. Functional acres are the basis for credits and debits, but should not be confused with complete credits and debits. The process to calculate credits and debits is described below.

CREDIT & DEBIT CALCULATION

Credits are the currency of the Exchange, and are used to offset debits. Credits represent the difference in functional acres between credit baseline and post-project habitat function, as shown in Equation 1.

Equation 1:

$$\text{Credits} = \text{Credit Baseline} - \text{Post project habitat function}$$

For each map unit the HQT will generate three functional acre values (one for each seasonal habitat type). However, the Exchange only tracks one credit type for greater sage-grouse. The steps for calculating this difference are as follows:

1. Calculate baseline functional acres per seasonal habitat type per map unit (see Baseline Section 2.3.1 for more information on determining the value of the credit baseline);
2. Calculate estimated functional acres resulting from the project (post-project function) per seasonal habitat type per map unit;
3. Calculate the difference between credit baseline and estimated post-project functional acres per seasonal habitat type per map unit;
4. For each map unit average the functional acre values for each of the three seasonal habitat types (calculated in step 3) so that each map unit is assigned one functional acre value; and
5. Sum all map units' assigned functional acre values to get a total number of functional acres (credits) that the project is expected to generate.

Table 2.6 provides an example illustration of the calculation of credits for a hypothetical credit project consisting of three map units.

Table 2.6: Example Credit Calculation

MAP UNIT	FUNCTIONAL ACRE DIFFERENCE RELATIVE TO BASELINE			ASSIGNED FUNCTIONAL ACRE DIFFERENCE
	BREEDING	SUMMER	WINTER	
Map Unit 1	48	0	39	29
Map Unit 2	5	0	20	8.33
Map Unit 3	5	10	5	6.67
Sum of Assigned Functional Acre Difference Relative to Baseline = Total Number of Credits				44

Debits represent the difference in functional acres between habitat function resulting from the project (post-project habitat function) and debit baseline as shown in Equation 2. Baseline for debit projects is equal to the pre-project habitat function (see [Baseline](#) Section 2.3.1 for more information). The steps for calculating debits are similar to the process described above for credit.

Equation 2:

$$\text{Debits} = \text{Post project habitat function} - \text{Debit Baseline}$$

Use of the HQT

The HQT is used consistently throughout the duration of a credit project to 1) determine baseline functional acres for certain types of projects (see Section 2.3.1 Baseline); 2) substantiate the release of credits when the credit project meets performance standard milestones; and 3) verify that habitat function is being maintained as expected over time. The HQT is used for debit projects to 1) determine pre-project functional acres before impacts occur; 2) determine expected post-project functional acres that will result

from the debit project; and 3) determine the reduction of impacts as necessary over time. Pre-project HQT results for credit or debit projects can be used for up to 5 years after a site has been verified as long as the habitat function is believed to be similar to the previous assessments and the HQT has not been revised and approved by the Oversight Committee.

2.2.3 MANAGEMENT ACTIVITY TYPES

To achieve the conservation needs and facilitate recovery of greater sage-grouse, the Exchange provides for three types of management activities which can be applied to any credit project that is currently allowed in the Exchange. The choice of management activity type determines baseline and verification as described in Table 2.7 below.

- 1) **Habitat Conservation** – Maintenance of existing high-quality habitat. To meet minimum performance requirements in Section 2.2.5, Habitat Conservation projects will generally occur on sites with HQT site scale scores greater than 60%. This will preferably be habitat that is currently used by greater sage-grouse. An example may include placing a term or permanent conservation easement on existing high-quality habitat.
- 2) **Habitat Restoration** – Creation of new habitat where habitat has been lost or highly degraded. Habitat Restoration can use a preferable baseline score and thus generally occur on sites where the initial HQT site scale score is less than 20%. Examples may include the creation of useable greater sage-grouse habitat on former cropland.
- 3) **Habitat Enhancement** – Improvements to medium or high-quality habitat. Habitat Enhancement projects generally occur on sites where the initial HQT site scale score is greater and 20% and management activities can increase the HQT site scale score to greater than 60%. One example is improvement of functional scores through the removal of pinyon-juniper trees on a site adjacent to existing sagebrush rangeland.

Deleted: or mule deer

Deleted: s

Formatted: Indent: Left: 0.5", No bullets or numbering

Table 2.7: Overview of Management Activity Types

OVERVIEW OF MANAGEMENT ACTIVITY TYPES				
MANAGEMENT ACTIVITY TYPE	MANAGEMENT INTENSITY	INITIAL HQT SITE SCALE SCORE [SECTION 2.2.5]	BASELINE [SECTION X.X.X]	VERIFICATION [SECTION X.X.X]
Conservation	Very little management	> 60%	20%	Signpost
Restoration	Significant management	< 20%	Initial HQT score	Control Area
Enhancement	Low to Moderate management	> 20%	20%	Signpost

Formatted Table

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Font: Italic

Formatted: Normal, No bullets or numbering

Formatted: Normal

2.2.4 MITIGATION CREDITS & CONSERVATION CERTIFICATES

The Exchange provides two project types that benefit greater-sage-grouse habitat, Mitigation Credit Projects and Conservation Certificate Projects. The inclusion of these two projects is designed to maximize the quantity and quality of greater sage-grouse habitat while preventing speculative or market distorting purchases within the Exchange. All credits and certificates should align with overall Exchange goals, as well as state, regional and local management goals and objectives. For greater sage-grouse habitat, projects should align with conservation measures that have been scientifically proven to benefit greater sage grouse. These actions may include management for fire, non-native invasive plant species,

grazing, pinyon-juniper removal, and other measures based on local conditions and threats. All exchange products must also show demonstrated benefit to the species based on the HQT metrics, and must meet all site eligibility requirements described below.

The two products available on the Exchange are outlined in Figure 2.3 (next page) and in more detail in the text below.

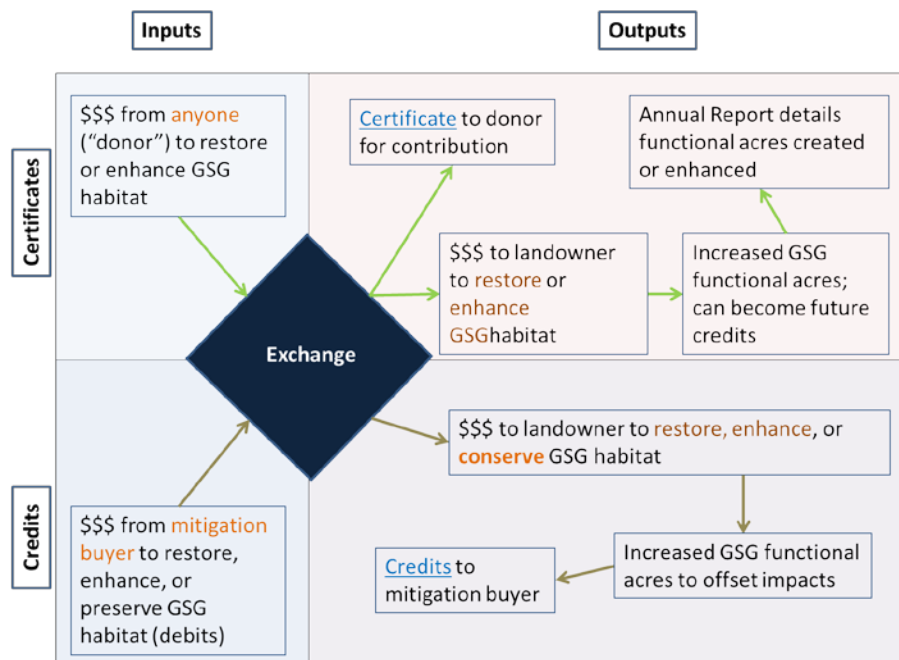


Figure 2.3: Mitigation Credit and Conservation Certificate Project Overview

CREDIT PROJECTS

Credits are created within the Exchange for the purpose of offsetting an impact to greater sage-grouse habitat. A mitigation credit is created within a credit project that has the following attributes or components, as described elsewhere in this Exchange Manual:

- The credit, as defined in [Metrics](#) (Section 2.2.2), must be created from one of the three [Management Activity Types](#) (Section 2.2.3): habitat conservation, restoration, or enhancement; and
- The credit must have mechanisms in place to ensure that the credit project is maintained for the duration of the contracted period. These include the following elements: 1) *Participant Contract* to deliver credits for a defined period of time; 2) *Management Plan* to fulfill credit project requirements and meet the performance standards necessary to release credits; and 3) *Financial assurances* to ensure the delivery of credits for the duration of the project.

Additionally, compensatory mitigation credit projects must meet the following Exchange requirements:

- Meets [Credit Site Eligibility](#) (Section 2.2.5) and [Project Duration](#) (Section 2.4.1) requirements;
- Contributes to the [Reserve Account](#) (Section 2.5.4);
- Verifies credits according to the requirements for [Verification](#) (Section 2.5.2);
- Releases verified credits according to the [Credit Release](#) requirements (Section 2.5.1); and

- Meets all other requirements for credit projects outlined in this Exchange Manual.

A mitigation credit can be purchased by an entity that requires compensatory mitigation for a debit project. The Buyer of a mitigation credit may hold that credit for up to three years from the date of purchase, as long as the Buyer has demonstrated the need for mitigation credits. At the end of three years from the date of purchase, or if the Buyer no longer demonstrates a need for compensatory mitigation, the Buyer shall sell or transfer the credit to a qualifying third party or to the Exchange Administrator within 12 months. The Buyer may secure one three-year extension on the requirement to offer credits for resale if the Buyer submits a written statement to the Exchange Administrator attesting that the Buyer intends to use the credits for mitigation not later than six years from the original purchase date.

The cost of management types may vary considerably. Therefore, the costs of generating credits from restoration may be greater compared to other management types. In addition, credits from restoration management activities may not be immediately available for release and purchase. To incentivize habitat restoration, the Exchange Administrator can create an option for conservation certificate, as described below.

CONSERVATION CERTIFICATE PROJECTS

A conservation certificate is provided within the Exchange for the purpose of restoring and enhancing greater sage-grouse habitat to: 1) provide benefit to greater sage-grouse habitat; and 2) increase future credit availability. A conservation certificate can be purchased by any entity through a donation to the Exchange. The certificate is a record of conservation investment, and provides no financial or legal control or authority over the Credit Developer or Exchange Administrator.

Conservation certificate donation outcomes will be identified in an annual report which will be posted on the Exchange website. The annual report will aggregate functional acreages under conservation certificates, the current status of the Exchange, and beneficial outcomes relating to the conservation efforts of all participating parties. The annual report may also be used to solicit additional conservation certificate donations to ongoing efforts and research that will benefit the species.

The Exchange Administrator uses the conservation certificate donation (or aggregated donations) to fund grants or loans to undertake the restoration or enhancement of greater sage-grouse habitat (see [Management Activity Types Section 2.2.3](#)). The Exchange Administrator will track, record and report all expenditures in functional acres of habitat restored or enhanced.

Conservation certificate projects must meet the following Exchange requirements:

- Meets [Credit Site Eligibility](#) requirements (Section 2.2.5), but does not require a contribution of credits to the [Reserve Account](#) as defined in Section 2.5.4;
- Does not require ongoing [Verification](#) as outlined in Section 2.5.2. At a minimum, pre-project and post-project verification is required to confirm the appropriate numbers of functional acres are identified for the conservation certificate project;
- Pays any applicable transaction fees as established by the Exchange Administrator (Section 2.1.6).

A landowner enrolled in a conservation certificate project may exit from the project contract by repaying all Exchange funds received as part of the conservation certification project plus a 10% penalty. Once a landowner's conservation certificate project contract is no longer valid, the landowner may enter into a credit project with the Exchange. If developing a credit project, the Exchange Administrator should ensure compliance with [section 2.3.3](#) if the certificate project was funded with state or federal funding.

2.2.5 CREDIT SITE ELIGIBILITY

To be eligible to participate in the Exchange, credit sites must meet the eligibility criteria defined below.

SERVICE AREAS

All credit sites must be located within a relevant service area of the Exchange. See [Service Areas](#) (Section 2.2.1) for more information.

OWNERSHIP & STEWARDSHIP

Credit Developers must attest to their current ownership, tenure or use rights, as well as provide basic information related to past stewardship practices on-site as applicable.

MINIMUM PERFORMANCE STANDARDS

The Exchange requires that credit sites meet minimum performance standards related to habitat function for the greater sage-grouse. Performance standards for habitat function must be met at the site scale (4th order) and landscape scale (2nd order), as described below

- **Site Scale (4th order):** Anticipated site-scale function, based on the Management Plan for the credit project, must be greater than or equal to 60% function at the site scale, achieved before the end of the project, to be eligible to generate and release credits. See [Credit Release](#) (Section 2.5.1) for a description of how credits are released.
- **Local (3rd order) and Landscape Scale (2nd Order):** Requirements for credit project eligibility related to local and landscape scales will be considered upon finalization of the HQT. The purpose of minimum performance standards at the local and landscape scales is to eliminate potential credit projects that are not located in fully-functioning landscapes as required by greater sage-grouse.

DEVELOPMENT RISK

In cases where the credit site has an elevated risk of being developed, the credit project is not eligible to participate. This exclusion applies to credit project sites with one or more of the following elevated risk characteristics:

- NEPA document for development currently underway;
- Existing Application to Drill approved by Colorado Oil and Gas Conservation Commission (COGCC);
- Spacing for mineral development approved by COGCC within the past 5 years;
- Located in a renewable energy zone or transmission corridor that has an approved right of way with uses that are incompatible with the HQT;
- Building permit submitted for multiple sites within the project boundary;
- Other conflicting encumbrances or contractual agreements that affect surface use as described in the Participant Contract.

Development Risk Exceptions

The credit project may be eligible to participate in the Exchange regardless of the aforementioned bullets in certain circumstances. In cases where a Credit Developer has a Surface Use Agreement or other legal agreement or mechanism that has sufficient protection for the species, the credit project site may still be eligible to participate in the Exchange. The Exchange Administrator will work with the Credit Developer in these cases to ensure that the credit site would be able to generate benefit for the species, as determined by the HQT, even in cases of future development. The Exchange Administrator will use the following guidelines to determine if the Surface Use Agreement or other legal agreement or mechanism has sufficient protection for the species:

- The credit project is able to meet minimum performance standards described above; and

- The Surface Use Agreement or other legal agreement adequately restricts site-specific development, such as placement of facilities, so that HQT scores for the project site are not impacted.

SITE PROTECTION

Credit Developers must show evidence of site protection for the duration of the contract period. The appropriate evidence is defined in the Participant Contract and includes contractual agreement or other legally binding agreements, such as conservation easements, for the life of the contract. See Site Protection (Section 2.4.1) for more information.

FINANCIAL ASSURANCES

Credit Developers must commit to show evidence of financial assurances that are specifically defined in the Participant Contract with the Exchange. See [Financial Assurances](#) (Section 2.5.5) for more information.

ADDITIONALITY

Credit Developers must demonstrate that the credit project generates more habitat than is legally required under existing agreements. Credit Developers must also describe how federal or state funds have been previously or currently used to support the development and management of the credit project site. Credit Developers must demonstrate that the credit project site will provide additional benefit to the species than those generated through the application of existing public funds. See the next Section on Addressing Additionality for more information.

2.3 ADDRESSING ADDITIONALITY

Regardless of land ownership, credit projects should provide benefits additional to those that would have existed absent credit project implementation. This section describes how credit project sites meet the Exchange’s additionality requirements related to baseline, public lands designations, partnering with public funds, *credit stacking* and integration with existing federal tools to provide for candidate species.

2.3.1 BASELINE

Baseline is the starting point from which credits and debits are calculated.

CREDIT BASELINE

For credit projects, the amount of credit generated on the site is equal to the difference between the post-project functional acres on the site and credit baseline. See [Metrics](#) (Section 2.2.2) for more information on functional acres. Credit baseline is computed before the project is implemented (See [Generating Credits](#) Section 3.1.2) by multiplying the landscape-scale habitat function by the local scale habitat function by the site-scale habitat function, as shown in Equation 3.

Equation 3:

Credit Baseline =

*Landscape scale habitat function * local scale habitat function * site scale habitat function*

The site-scale habitat function portion of credit baseline is determined differently for sites with high versus low quality pre-project function.

- Projects using conservation management activities typically start with higher than average pre-project site-scale function. These types of credit sites will use the regional average site-scale habitat function in their credit baseline calculation. The regional average site function is estimated to be 20%. The **conservation example** in Table 2.7 illustrates this type of baseline calculation. In this example, the landscape-scale habitat function (75%) is multiplied by the local-scale function (80%) and regional average site-scale habitat function (20%) to derive the total baseline habitat function of 12%.
- Projects using enhancement management activities also typically start with higher than average pre-project site-scale function. These types of credit sites will also use the regional average site-scale habitat function (20%) in their credit baseline calculation. The **enhancement example** in Table 2.7 illustrates this calculation, which is the same as the conservation example and derives a total baseline habitat function of 12%.
- Projects using restoration management activities typically start with lower than average pre-project site-scale function. In these cases, the credit baseline is determined by using the control area monitoring results for site-scale habitat function up to a baseline of 20% in place of the regional average site-scale function. See [Verification](#) Section 2.5.2 for information on control area monitoring. This case is also illustrated in Table 2.7 as the **restoration example**. In this example, the credit project’s landscape-scale function (75%) is multiplied by the local-scale habitat function (80%) and the actual site-scale habitat function (10%) to derive the total baseline value of 6%.

Table 2.8: Example Credit Baseline Calculations

EXAMPLE PROJECT	LANDSCAPE FUNCTION	LOCAL FUNCTION	REGIONAL AVERAGE SITE FUNCTION (4 TH ORDER)	BASELINE HABITAT FUNCTION	ACRES	BASELINE FUNCTIONAL ACRES
Conservation Example	75%	80%	20%	12%	200	24
Enhancement Example	75%	80%	20%	12%	200	24
Restoration Example	75%	80%	10% **	6%	200	12

**Actual site-scale habitat function used in place of the regional average site-scale function.

Using a 20% regional average site-scale function in the credit baseline calculation allows the Exchange to balance the desire to provide some reward to Credit Developers who have demonstrated historically good stewardship, with the need to provide incentives for Credit Developers to restore degraded habitat. In the future, different regional average site-scale habitat functions may be evaluated for categories such as credit projects on public lands and credit projects that have received payments for habitat conservation (i.e., federal payment programs), based on data that becomes available.

DEBIT BASELINE

Baseline for debit sites is equal to the pre-project habitat function. Debit baseline is calculated according to Equation 4.

Equation 4:

Debit Baseline =

*Landscape scale habitat function * local scale habitat function * site scale habitat function*

Buyers must use the HQT to estimate the actual functional acres of habitat that may be affected by the debit project before any development on the site begins. Significant changes in vegetation structure and composition that affect habitat function occurring within the past ten years may be considered when determining debit baseline. The Exchange uses the debit baseline to determine the total credit obligation necessary to offset impacts.

2.3.2 PUBLIC LANDS & OTHER DESIGNATIONS

Consistent with the USFWS Mitigation Framework, the Exchange allows for credits to be generated on public lands (e.g. BLM, Forest Service, state trust lands etc.) or other lands already under permanent conservation restrictions (e.g. existing conservation easements) for mitigation purposes, if the proposed credit project would add additional benefit above and beyond what would be achieved under the existing land designation or restriction.¹³ Public or other protected lands are able to meet additionality requirements of the Exchange if the Credit Developer can demonstrate that verifiable benefit using the HQT can be attained through an eligible credit project, and that durability can be provided for the duration of the credit project. See Demonstrating Effectiveness and Durability (Section 2.4) for more information. [Federal agencies may have to develop internal policies to ensure they can act as a credit developer on federal lands.](#)

¹³ US Fish and Wildlife Service. Greater Sage-Grouse Range-Wide Mitigation Framework Version 1.0. September 3, 2014. Page 13.

2.3.3 PARTNERING WITH PUBLIC FUNDS

This section provides guidance for determining the number of credits available for enrollment in the Exchange when a Credit Developer is currently or has previously participated in a public funding program (e.g., USDA Farm Bill conservation programs). There are two discrete time periods when payments may be partnered with federal or state funds including 1) when a current contract is still in effect, and 2) after a previous contract has expired.

Where conservation values have already been permanently protected or restored under other federal, state, tribal or local programs benefitting the covered species, the Credit Developer can only receive credit if enrollment of the property in the Exchange would create additional conservation benefit above and beyond the terms of the original agreement. (see [Public Lands and Other Designations](#) Section 2.3.2).

INSIDE OF AN EXISTING PUBLIC CONTRACT

Where allowed within an existing federal or state contract, the allocation of credits on affected acreage will be proportionate to the non-federal or non-state contribution to the conservation benefit. For example, acreage capable of producing ten credits but with a fifty percent (50%) federal contribution will be allocated five credits. This only applies to the portion of the benefit on a particular property that can be attributed to federal funds for the duration of the practice (i.e. life of the practice). The rest of the property and benefit is fully creditable.

OUTSIDE OF A PREVIOUS PUBLIC CONTRACT

A Credit Developer may create a credit similar to any other credit created within the Exchange following expiration of a federally or state funded contract. Similar to the state-financed long-term contract extensions and permanent conservation easements offered in the Illinois Conservation Reserve Enhancement Program, these long-term contract extensions and permanent conservation agreements could be entered into contemporaneously with execution of the underlying contract or thereafter, but the Exchange credits would not take effect until after the expiration of the underlying contract.

2.3.4 STACKING CREDIT TYPES

Credit stacking is when there is more than one ecological resource or credit type on spatially overlapping areas. Credit Developers are able to generate and sell different types of credits (e.g. greater sage grouse credits and mule deer credits) on the same area of land, if they demonstrate additionality of conservation outcomes. The HQTs will be developed to provide habitat function scores for multiple species (i.e. greater sage-grouse and mule deer) on a single project site. Credit Developers are able to generate and sell habitat credits for different species or resources if they demonstrate additionality of specific conservation outcomes. For properties that are participating in multiple environmental markets, the Exchange Administrator will consider how participation in those markets affects the additionality of the credit project.

2.3.5 INTEGRATION WITH CCA/CCAAS

Consistent with the Mitigation Framework guidance, Credit Developers enrolled in *Candidate Conservation Agreements* (CCAs) or *Candidate Conservation Agreement with Assurances* (CCAAs) can enroll in the Exchange and generate credits if the benefits or commitments generated are additional to those required by the CCA or CCAA¹⁴. Credit projects previously enrolled in a CCA or CCAA must work with

¹⁴ US Fish and Wildlife Service. Greater Sage-Grouse Range-Wide Mitigation Framework Version 1.0. September 3, 2014. Page 14.

the Exchange Administrator to determine appropriate project qualifications considering the existing CCA or CCAA.

2.4 DEMONSTRATING EFFECTIVENESS & DURABILITY

The Exchange requires that all projects have a minimum level of *durability*. Credit projects must be in effect for at least as long as the impacts associated with the debit project that they are designed to offset. Durability is addressed through legal, financial and management mechanisms. This section describes the Exchange requirements on credit project duration and credit site protection for public and private lands.

2.4.1 PROJECT DURATION

Project duration is the amount of time that the Exchange recognizes an active project. For credit projects, project duration is the length of time a Credit Developer has committed to creating and maintaining the habitat function stated in the Participant Contract and Management Plan. For debit projects, project duration is the length of time that the project is anticipated to impact habitat function at the site and an additional set period of time to return the site to baseline condition (see 2.3.1 Baseline for further discussion). Project duration is reviewed by the Exchange Administrator for each specific credit and debit project, according to the guidance described below.

CREDIT PROJECTS

The duration of credit projects can be term or permanent. The minimum project duration is 10 years and the maximum project life is permanent. Credit project duration can be defined in 5 year increments (above the 10 year minimum). Thus, project duration can be 10, 15, 20, 25 years and so on, up to and including permanent contracts. The rationale behind the 10-year minimum is based on expert opinion from the Exchange's Science Team that rapidly changing habitat function can be detrimental to populations. Longer-term credit projects are preferable for benefit of the covered species.

The Credit Developer defines the credit project duration in the Management Plan and Participant Contract that is submitted to and approved by the Exchange Administrator. Once the credit project has ended, the Credit Developer can elect to renew the project under the Exchange. Renewal entails developing a new Management Plan and using the HQT and associated Exchange design elements that are approved at the time of renewal to assess the habitat function and amount of credit generated by the site. Renewal will also require a qualified, third party verification. See [Verification](#) (Section 2.5.2) for more information. If the project is not renewed, the Exchange will cease recognizing credits at the end of the contracted duration.

DEBIT PROJECTS

Like credit projects, the duration of debit projects can be either term or permanent. Permanent debit projects will have permanent project duration.

Term debit projects must have a known conclusion date whereby the site has been remediated to the debit project's baseline condition ([section 2.3.1](#)). The length of the term debit project will be defined through the relevant permitting process (e.g. permits approved by the Colorado Mined Land Reclamation Board include a defined term). The Colorado Oil and Gas Conservation Commission does not identify a known conclusion date for oil and gas activity, therefore, for the purposes of COGCC-permitted debits in the Exchange, the assumed term length will be set at 35 years. Credits with duration of at least 35-years must be acquired to offset COGCC-permitted debits through the Exchange.

At the end of the term, third-party verification is required to demonstrate that the site has been remediated back to baseline conditions (see [Verification](#) Section 2.5.2). To ensure sufficient credits are

available if final remediation of a term debit does not occur by the end of the term length, the Exchange Administrator may require a debit project to obtain sufficient financial instruments or provide payment into a dedicated contingency fund ([see box on right for additional guidance](#)). If verification demonstrates that a term debit project has not been fully remediated, the Exchange Administrator may use the financial instrument to purchase additional credits sufficient to cover the residual impact.

Matching the Duration of Credits and Debits

The Exchange requires the duration of a credit project to be equal to or greater than the duration of the debit project it is offsetting. The Exchange Administrator ensures that credit project durations are sufficient to meet or exceed the duration of the debit project they are offsetting through *static offsets* or *dynamic offsets*.

- **Static Offsets** – a debit project is offset by a single credit project that is fixed in a single geographic location with the Participant Contract, Management Plan and associated site protection mechanisms in place for the contracted duration of the debit project.
- **Dynamic Offsets** – a debit project is offset by a series of term credit projects such that the location of the credit projects can shift across a defined geographic space (i.e. a set of rolling term projects funded for the full duration of the debit project or into perpetuity). Dynamic offsets are defined as a series of strategically located, term-based contracts that, when sequentially aggregated, meet or exceed the duration of the impact

Requirements for Dynamic Offsets

A Credit Developer, Aggregator or the Exchange Administrator may develop a dynamic offset that commits to meet the credit requirements for a debit project using a series of term credit projects. The financial assurances associated with a dynamic offset credit project are similar to those required for static offset projects but may include additional requirements to ensure durability and sufficient funding is in place to secure new term contracts for the full length of the impact. Additionally, the Exchange Administrator and Aggregators must be able to ensure compliance and accountability through tracking and reporting, enforcement for credit reversals and direct management of financial instruments. See [Financial Assurances](#) (Section 2.5.5) for more information.

The potential benefits of dynamic offset projects include increased participation and a greater number of total credit projects and credits available for sale due to Credit Developer preferences for term contracts. Term projects also enable the ability to shift the location of high quality habitat in response to population dynamics and potential effects of climate change. See [Appendix E](#) for a more complete discussion on the benefits of dynamic offsets.

Debit Project Financial Instrument Guidance

The following guidance should be used to design and use a financial instrument or a contingency fund associated with term debit projects:

- **When to acquire:** the financial instrument should be in place at time of credit transfer associated with the debit project.
- **When used:** the financial instrument is not to be used before the expected end of the term credit (i.e. not before 35 years) and only as described below.
- **Who has access:** The financial instrument should be designed so the Exchange Administrator has authority to access the funds. The credit purchaser should not have access to the funds.
- **Use of funds:** The financial instrument funds can only be used to purchase additional Exchange-generated credits.

Deleted: yet

2.4.2 SITE PROTECTION

Credit projects on both public and private lands must be able to provide documentation of site protection for the duration of the proposed credit project. A site protection instrument or agreement will be required in association with Participant Contracts and Management Plans. These documents require a written

description of the legal arrangements including ownership, management and enforcement of any restrictions that will be used to ensure protection of a credit project site. Participant Contracts and Management Plans will include the following information related to each credit site:

- Reference to the Exchange and its purpose to protect habitat in a compensatory mitigation context under all relevant laws;
- Survey and legal description of the property, along with other property rights or interests.
- Description of conservation resources on the site including any state or federally listed or imperiled species;
- Right of enforcement by the Exchange Administrator and Regulators;
- Amendment and transfer notification requirements;
- Any prohibited and acceptable uses of the site;
- Identification of any preexisting easements, liens, encumbrances or surface use agreements with subordination of any preexisting agreements that may conflict with the use of the property as a compensatory mitigation site;
- Other information required by applicable laws.

Deleted: or other

PRIVATE LANDS

Credit projects on private land must demonstrate site protection as part of the Participant Contract and Management Plan. Permanent credit projects must secure a covenant, conservation easement, deed restriction or similar device to demonstrate durability. Term credit projects must have in place a Participant Contract and Management Plan that includes appropriate language to ensure durability for the length of the project.

Deleted: duration

PUBLIC LANDS

Public lands credit sites likely cannot be secured for a perpetual duration; however, they can likely meet Exchange requirements for term credit projects. To ensure sufficient site protection, the Exchange will enter into an agreement with the applicable public lands agency stipulating site protection criteria for greater sage-grouse habitat. Criteria will be enumerated and upheld in corresponding land-use or resource management plan administered by the agency for permitted and non-permitted uses. For permitted uses the public lands management agency will engage the permittee in carrying out mutually agreed upon management as referenced in their permit and their annual implementation rules. All public lands credit projects must meet the stated Credit Site Eligibility requirements of the Exchange ([Section 2.2.5](#)) and the reserve account contribution requirements ([Section 2.5.4](#)). In addition, credit projects on public lands must meet the provisions to ensure financial protection of the credit project site. This includes entering into a Participant Contract and establishing financial instruments where funds are available for management, maintenance, and other activities defined in the Management Plan throughout the contracted duration of the project. See [Financial Assurances](#) ([Section 2.5.5](#)) for more information.

2.4.3 FINANCIAL & MANAGEMENT MECHANISMS TO ENSURE PROJECT PERFORMANCE

The Exchange uses several additional mechanisms to ensure that credit projects continue to perform and maintain credits over time. These mechanisms include Verification to ensure on-the-ground performance, a reserve account to ensure net benefit and financial assurances to ensure sufficient funds are available to maintain the project for the duration of the contracted period and to replace credits lost to reversals. See Managing Risk ([Section 2.5](#)) for more information on these financial and management mechanisms.

2.5 MANAGING RISK & UNCERTAINTY

The Exchange utilizes several risk management measures that ensure performance before and after credits are released to secure habitat for the benefit of the species. Credit release and verification ensure that credit projects achieve their stated performance standards and generate benefit for the species before they may be sold to offset debits. In the event of credit reversals, the Exchange utilizes a combination of the reserve account and project-specific financial assurances to cover credit losses to ensure continued programmatic net benefit. This section provides further detail on the Exchange's requirements for credit release, verification, and minimum requirements and terms of use of the reserve account and financial assurances to cover losses in the event of credit reversals.

2.5.1 CREDIT RELEASE

The Exchange uses credit release schedules to manage risk and uncertainty by releasing credits only when specific performance standards are met. Credit release occurs when 1) credit projects meet the requirements for mitigation credits outlined in Mitigation Credits and Conservation Certificates [section 2.2.4] and 2) a new milestone of performance is achieved on a credit site, warranting an increase in the amount of credit generated on that project site. Specific performance standards are defined in each project's Management Plan, and each credit project will have a unique credit release schedule based on those performance standards. A decline in habitat function outside of the tolerances defined in [Verification](#) (Section 2.5.2) is required to be remedied as defined in [Reversals](#) (Section 2.5.6). See [Verification](#) Section 2.5.2 for more information regarding third-party verification requirements necessary to trigger a new credit release.

Comment [WM1]: Added to clarify that credit project requirements must be met before credit release or as part of the credit release schedule.

CREDIT PROJECTS: CONSERVATION

For credit projects using conservation management activities where existing high quality habitat is maintained at current habitat function by the Credit Developer, credit release is determined by verifying that habitat function is meeting the defined performance standards stated in the credit project's Management Plan.

Conservation projects have a two-step credit release:

- In year 1, 67% of credits are available for release upon a first FULL monitoring verification; and
- The final 33% of credits are available for credit release after satisfying the final signpost monitoring requirements described in [credit Verification](#) Section 2.5.2.

Credit Project Management Activity Types

As described in Section 2.3.3, the Exchange allows for the following types of management within credit projects:

- **Habitat Conservation** – Maintenance of existing high-quality habitat. This will preferably be habitat that is currently used by the species. An example may include placing a conservation easement on existing high-quality habitat.
- **Habitat Restoration** – Creation of new habitats where habitat has been lost, or highly degraded. One example is the creation of useable greater sage-grouse habitat on former cropland.
- **Habitat Enhancement** – Improvements to medium or high-quality habitat. One example is improvement of functional scores through the removal of pinyon-juniper trees on a site adjacent to existing sagebrush rangeland.

Released credits are valid for the duration of the credit project's life, provided that the Credit Developer continues to meet performance standards confirmed in verification and self-monitoring reports.

Table 2.9a (next page) provides an example of a hypothetical credit release for a Conservation Project with signpost monitoring.

Table 2.9a: Example of a Credit Release Schedule for a Conservation Project with Signpost Monitoring

PERFORMANCE STANDARDS ACHIEVED	CREDITS RELEASED
Milestone 1: Actions <ul style="list-style-type: none"> - Site protection instrument signed (contract or easement) - 2/3 of Financial assurances secured - FULL monitoring assessment complete 	67% of Total Anticipated Credits, based on first year monitoring results
Milestone 2: Performance <ul style="list-style-type: none"> - All financial assurances secured - SIGNpost monitoring completed 	100% of Total Anticipated Credits, after at least 2 years of signpost monitoring (Appendix X2)

CREDIT PROJECTS: ENHANCEMENT

For credit projects that use enhancement management activities where existing functional habitat is improved and maintained by the Credit Developer, credit release occurs in two or more phases when performance standards defined in the project's Management Plan are achieved. The credit release schedule in the Management Plan uses performance standards to define incremental credit release intervals.

- The first credit release for enhancement credit projects occurs at the time of initial verification of habitat function above credit baseline. Up to two-thirds of the total anticipated credits can be released during the first credit release based on FULL monitoring. SIGNpost monitoring is optional for the first credit release. (See [credit Verification](#) Section 2.5.2 for description of monitoring procedures.)
- Upon verifying enhancement conditions through FULL and SIGNpost monitoring, the total revised anticipated credits can be released from the credit project site.

Released credits are valid for the duration of the credit project's life, provided that the Credit Developer continues to meet performance standards confirmed in verification and self-monitoring reports.

Table 2.9b provides an example of a hypothetical credit release for an Enhancement Project with signpost monitoring.

Table 2.9b: Example of a Credit Release Schedule for an Enhancement Project with Signpost Monitoring.

PERFORMANCE STANDARDS ACHIEVED	CREDITS RELEASED
Milestone 1: Actions <ul style="list-style-type: none"> - Conifer trees removed - Site protection instrument signed - 2/3 of financial assurances secured - FULL monitoring assessment complete 	Up to 67% of Total Anticipated Credits (Credits limited to amount of Credits existing at Milestone 1)
Milestone 2: Performance <ul style="list-style-type: none"> - All financial assurances secured - FULL & SIGN monitoring assessment completed 	100% of Revised Total Anticipated Credits (revised based on complete monitoring, FULL and SIGN)

CREDIT PROJECTS: RESTORATION

For credit projects where habitat function is restored (i.e., significantly improves) by the Credit Developer over the project's duration, credit releases occur when verification determines that habitat function is

meeting the performance standards defined in the credit project's Management Plan. The credit release schedule in the Management Plan uses performance standards to define credit release intervals.

- Up to but no more than the first one third of credits may be released upon implementation of conservation actions defined in the credit project's Management Plan. Credits released based on fulfilling conservation action will be limited to one third of the total credits that the project is ultimately anticipated to generate. Examples of actions may include signing the Participant Contract and Management Plan, planting native vegetation and providing documentation to the Exchange Administrator that financial assurances are secured.
- The remaining two thirds of credits are released over additional credit release intervals upon verification that the habitat function is meeting performance standards. For example, an additional one-third of total credits may be released when 66% of expected habitat function is achieved, and the final one-third (i.e., the full credit amount) may be released when 100% of anticipated habitat function is achieved, as illustrated in Table 2.9c. Performance standards may be defined in the Management Plan as either quantitative goals tied to specific attributes that are included in the HQT or as overall HQT scores for the project. Upon verifying conditions to release all credits anticipated from the site, these credits are expected to be maintained for the full duration of the credit project, and will be confirmed in verification and self-monitoring reports.

Table 2.9c shows an example of a credit release schedule for a hypothetical restoration project, with performance standards articulated through overall HQT project site scores.

Table 2.9c: Example of a Credit Release Schedule for a Restoration Project

PERFORMANCE STANDARDS ACHIEVED	CREDITS RELEASED
Milestone 1: Actions - Native vegetation planted - 1/3 of financial assurances secured	33% of Total Anticipated Credits
Milestone 2: Performance - 66% of expected HQT score for the project - 2/3 of financial assurances secured	66% of Total Anticipated Credits
Milestone 3: Performance - 100% of expected HQT score for the project - All financial assurances secured	100% of Total Anticipated Credits

The Exchange limits risk from action-based releases using a combination of mechanisms that ensure net benefit and limit overall Exchange risk, including the reserve account and financial assurances. Should a restoration credit project fail to generate the credits indicated in the site's Management Plan, these mechanisms cover any shortfalls in credits. Although credit projects using restorative management activities may carry some risk of not achieving expected habitat function, it is important to restore habitat in critical areas and gain additional experience with innovative approaches to improve habitat quality. Limited credit release upon implementation of actions helps to enable restoration activities to be more economically viable.

PAYMENT STRUCTURE

Credit release does not necessarily follow the same schedule as the payment structure for participants. See [Financial Assurances](#) (Section 2.5.4) for more information on participant payment structures.

REMEDIAL ACTION PLANS

Each credit project has a Management Plan and Participant Contract specifying that if performance standards are not met, the Credit Developer and Exchange Administrator must develop a remedial action plan to adaptively manage the credit project and determine how the project can meet performance standards or other appropriate remedies. See [Reversals](#) (Section 2.5.6) for more information.

2.5.2 VERIFICATION

All credit and debit projects require *compliance monitoring* referred to in the Exchange Manual as verification. The purpose of verification is to provide a standardized process for reporting and monitoring to certify that credit and debit calculations represent a true and accurate account of on-the-ground habitat function, as defined in the credit project's Management Plan and debit project's design documents. Ongoing verification and monitoring ensures that projects are maintained over time and support the expected habitat function commensurate with the amount of credits and debits generated. Ongoing verification also confirms whether activities on adjacent project sites have compromised the ability of enrolled credit sites to generate credits according to their Management Plan (See [Reversals](#) Section 2.5.6 for more information on related processes should this occur). The required frequency and process for verification and choosing Verifiers is defined below.

Verification is an independent, expert check on the HQT calculations and all supporting documentation. Third-party Verifiers are certified by the Exchange Administrator. Verification is conducted through use of the HQT. As the HQT is improved over time, the verification protocol will be adjusted accordingly.

CREDIT VERIFICATION

The Exchange requires that credit projects are verified at the following frequencies over the full duration of the credit project. In years where verification does not occur, self-monitoring of credit sites is required to ensure the site is continuing to meet performance standards.

1. **Before first credit release**
2. **Before additional credit releases**
3. **At defined interval according to project type**
4. **Periodic spot checks and audits**

Before first credit release

Third-party verification is required and the Exchange Administrator reviews the verification report as a necessary component of the documentation before the first credit release is approved.

Before additional credit releases

Third-party verification is required to confirm that conditions meet the performance standards specified in the credit release schedule in a project's Management Plan before an increase in credit amount is awarded.

At least every 5 years

At the defined interval, third-party verification is conducted and all documentation (i.e., current conditions data, HQT outputs and credit calculations) is reviewed by the Exchange Administrator to evaluate the project based on performance standards included in the credit release schedule. When verification is conducted to either support an additional credit release or a periodic spot check and audit, the defined interval requirement is reset. Thus, if project verification is completed in year 3 to support a new credit release and the defined interval is 10 years, then the next verification is not required until year 13.

Periodic Spot Checks & Audits

The Exchange Administrator, Oversight Committee or designated Verifier may conduct random audits for up to approximately 10% of credit sites, or when warranted by a complaint or lack of reporting data. In selecting a site for periodic, random verification, the Exchange Administrator must consider how recently a site was verified, so as not to unreasonably burden the participant.

CREDIT VERIFICATION METHODS

The Exchange provides two methods of credit verification based on project type: Signpost Monitoring is used for conservation and enhancement projects; and Control Area Monitoring is used for restoration projects. Each is described in more detail below.

Signpost Monitoring for conservation and enhancement projects

In order to balance the need for robust sampling over the spatial extent of projects with the need to monitor projects over time, the Exchange allows for signpost monitoring. The signpost monitoring protocol consists of an initial full monitoring (FULL) followed by two subsequent years of partial monitoring (SIGN). The process for full monitoring with a description of the required statistical adequacy criteria is described in the HQT Methods Document Appendix F. FULL monitoring must be done at least every 10 years, and the maximum interval without either FULL or SIGN monitoring is 7 years. In the two years immediately after FULL monitoring, two years of signpost monitoring (SIGN) occur on a reduced set of the locations (transects) previously established for a project area. Signpost monitoring is done for 2 years in conjunction with FULL monitoring to ensure that there were no unusual conditions in the FULL year. Both FULL and signpost monitoring are required for complete credit release on projects without control areas. See [Credit Release](#) (Section 2.5.1) for details.

In signpost years, approximately 15-20% of the locations sampled in FULL years must be sampled. In addition, if a project area is stratified into two or more map units, sampling must occur in every map unit. Signpost locations should be chosen carefully, after review of the data collected in a FULL year. In each map unit, the signpost site(s) should have vegetation parameters as representative as possible of the average vegetation parameters for the map unit. Consideration should also be given to the spatial location of signpost sites. Signpost sites should be in areas that are representative of the map unit.

Data from locations sampled in SIGN years should be entered into the HQT calculator. Data from only those locations from FULL years should also be entered. Parameters which are known to be sensitive to temporal variability, such as invasive grass cover, forb cover, and 4th order vegetation score, should be graphed over time to aid in understanding interannual trends.

If calculations from both SIGN years are 10% or more lower in total project credits when compared to the most recent FULL year, then the portion of credits not yet released may be withheld, and an analysis for causative factors would be triggered. This analysis should determine if the credit calculation from the FULL year was an overestimate of the habitat function typical for the site, and recommend a corrective action, such as collecting an additional year of FULL data. Credits calculated from FULL years within a multiple-year credit assessment should be averaged to determine final credits.

Control Area Monitoring for Restoration Projects

In restoration projects, a large change in credits is anticipated, and the baseline is actual site-scale habitat function, rather than regional average site-scale habitat function. (See Baseline Section 2.3.1) Setting up a control area allows actual site-scale habitat function to be assessed efficiently, and also provides a way to control for interannual variability in weather and other factors. With control areas, credit calculations can occur based off a single year of monitoring (in contrast to signpost monitoring), and the defined maximum interval for monitoring is 5 years. These factors are criteria for control areas:

1. Control areas should be matched to project area map units. Since broad strata are recommended for map units (see HQT Methods Document Appendix F), most projects will likely consist of a

single map unit, and only one control area would be needed. However, if a project area has distinct vegetation zones requiring different map units, then areas representative of each of those map units need to be set aside as controls. .

2. Pre-project photos of control and treatment areas (at least 5 of each, capturing variability in vegetation within each area) should be taken and supplied to the Exchange Administrator. The photos should be taken from the same year and time of the growing season in both areas.
3. Full monitoring of control areas should take place whenever full monitoring of treatment areas occurs.
4. Ideally, control areas should be adjacent to treatment area and centrally located. However, there will be cases where this is not advisable due to the nature of the treatment itself. For example, cheatgrass in untreated area could contaminate the treated area, or conifer trees in untreated area could reduce the value of treated area. In those cases, the control area should be as close to the project area as possible, but not more than 5 km away from the project area, and carefully matched according to vegetation, soils, slope, aspect, and elevation.
5. Control areas need to be big enough to provide a reasonable estimate of the untreated vegetation. They should be at least 5% of map unit area or 25 acres, whichever is less. Examples: 60 ac map unit -> 3 acres; 300 ac map unit -> 15 acres; 500 ac map unit -> 25 acres; 1000 ac map unit -> 25 acres.
6. Sampling of control areas should follow the same statistical adequacy requirements as that required of any other map unit (see HQT Methods Document Appendix F)

To calculate credits when control areas are employed, pre-project data is not required. Baseline (see section 2.3.1) for credit calculation is calculated from 4th order vegetation scores from the control area. In Restoration projects, the project baseline should be less than 20% at initial assessment. If control area function increases above 20%, baseline becomes defined at 20%, similar to conservation and enhancement projects.

CREDIT VARIABILITY & VERIFICATION RESULTS

Verification must take into account interannual variability, as this has a large impact on the quality of habitat for sage-grouse. For instance, weather factors, particularly changes in precipitation, account for about 60% of all change occurring in sagebrush ecosystems¹⁵, and interannual variability in forage quality has a large impact on the nutritional status of sage-grouse.¹⁶ *Credit variability* is variation in habitat function on a site as measured by the HQT between independent credit assessments. Even on relatively stable sites, variability between credit assessments may occur due to variation in precipitation patterns and other natural events that influence habitat function. Credit variability is also likely to occur due to sampling error that is inherent to any measurement methodology. Based on these considerations, the Exchange allows for limited variability in habitat function as a mechanism to protect Credit Developers from being subject to penalties for minor fluctuations.

Upon each credit release, third party verification must substantiate that the credit site meets or exceeds the habitat function defined in the credit release schedule of the project's Management Plan. Subsequent verifications may be up to 10% below the habitat function determined using the HQT. Credit project verifications within this 10% threshold will be considered as meeting defined requirements and will therefore not be subject to a reduction in credit or trigger the use of financial assurances for the project.

¹⁵ Xian, G., C. G. Homer, and C. L. Aldridge. 2012. Effects of Land Cover and Regional Climate Variations on Long-Term Spatiotemporal Changes in Sagebrush Ecosystems. *Giscience & Remote Sensing* 49:378-396.

¹⁶ Dyer, K. J., B. L. Perryman, and D. W. Holcombe. 2010. Site and age class variation of hematologic parameters for female Greater Sage Grouse (*Centrocercus urophasianus*) of northern Nevada *Journal of Wildlife Diseases* 46:1-12.

If verification shows that a credit site is outside the verification tolerance and is therefore not meeting the performance standards, the Credit Developer must work with the Exchange Administrator to determine a remedial action plan. Credit projects outside of the credit variability tolerance may be subject to the Exchange's processes related to credit reversals. See [Reversals](#) (Section 2.5.6) for more information on these processes.

DEBIT VERIFICATION

The Exchange requires that debit projects are verified at the following frequencies over the full duration of the debit project:

1. Before debit project begins
2. During project implementation period
3. When term debits end or decrease
4. Periodic spot checks and audits

Before debit project begins

The Exchange requires third-party verification of the current [habitat](#) function on debit sites before projects begin. The Buyer may decide it is more cost-effective not to verify pre-project site-scale conditions, and instead may assume a site-scale score of 100% habitat function modified by local and landscape-scale habitat function (See [Baseline](#) Section 2.3.1 for more information on how to compute debit baseline using the site, local and landscape scales).

Deleted: of greater sage-grouse and mule deer habitat

During project implementation

Third-party verification is necessary to verify site conditions once the project has been implemented to confirm that the appropriate amount of debit is being attributed to the debit project. Verification during this period is aligned with permit and regulatory requirements, which may allow for desktop verification.

When term debits end or reduce

Third-party verification is necessary at the end of a term debit to confirm that a debit site is no longer impacting habitat function. If, at the end of the debit project's duration, the site has not been remediated to baseline condition, the Exchange Administrator will require additional credits to be purchased for an additional term or if funds are available through a financial instrument or contingency fund, the Exchange Administrator will purchase additional credits to offset the remaining impact. If third-party verification demonstrates a reduction in the impact and amount of credits needed as an offset, the Buyer may sell or transfer surplus credits to another debit project or entity in accordance to Exchange requirements stated in [Mitigation Credits and Conservation Certificates](#) (Section 2.2.4).

Periodic spot checks & audits

The Exchange Administrator, Oversight Committee or designated Verifier may conduct random audits for up to approximately 10% of debit sites, or when warranted by a complaint or lack of reporting data. In selecting a site for periodic, random verification, the Exchange Administrator must consider how recently a site was verified, so as not to unreasonably burden the participant.

VERIFIER SELECTION

Contracting and payment for verification at credit and debit sites is handled by the Exchange Administrator (i.e., a Credit Developer or Buyer does not directly hire a Verifier). The Exchange Administrator receives a verification fee and a signed verification contract to allow access to the site from the Credit Developer or Buyer. The Exchange Administrator pays verification fees for all standard verification conducted according to the frequencies outlined above. The Exchange Administrator selects from the pool of certified Verifiers and notifies the Credit Developer or Buyer before the Verifier conducts a site visit.

2.5.3 RESERVE ACCOUNT

The reserve account is created and maintained by requiring that a portion of credits from each transaction are deposited into the reserve account. The credits that are contributed to the reserve account are never sold but instead are used to replace credits that have been sold but later become invalidated due to a credit reversal. The reserve account is managed by the Exchange Administrator, and it serves to provide insurance to the overall Exchange. Should projects fail, the credits that were generated and sold from those projects can be immediately replaced. The Exchange Administrator dedicates a percentage of credits from each credit transaction into the reserve account and manages the account overall.

RESERVE ACCOUNT CONTRIBUTION

The reserve account consists of credits, as opposed to dollars. Because it is an account that holds credits, a reserve of habitat is created that can immediately benefit the target species as opposed to a reserve of dollars that grows interest for a financial institution with less direct, immediate benefit for the species.

For each transfer of credits that occurs (see [Sell and Transfer or Retire Credits](#) in Section 3.1.5), a percentage of the total credits transferred are deposited into the reserve account. As described in greater detail below and illustrated in Equation 5, the total reserve account contribution percentage consists of a standard base contribution and an additional split estate risk contribution, unless the credit transfer is eligible for an exemption from the split estate contribution. Credits contributed to the reserve account must be additional to the number of credits used to offset a debit. Required contributions are described below.

Equation 5:

Total Reserve Account Contribution Percentage

$$= \text{Base Contribution Percentage} + \text{Split Estate Risk Contribution Percentage}$$

As shown in Equation 6, the total reserve account contribution percentage is multiplied by the number of credits transferred to determine the total reserve account contribution amount for the credit transfer.

Equation 6:

Total Reserve Account Contribution Amount

$$= \text{Total Reserve Account Contribution Percentage} * \text{Credits Transferred}$$

Required Contributions

Base Contribution

The base contribution for the reserve account for all credit projects is 4% of the total credits generated on-site that are transferred to a Buyer. The base contribution is required due to the inherent uncertainty in the measurement and estimation of the long-term benefits of credit projects due to *force majeure* events (such as wildfire and climate change) and other circumstances.

Split Estate Development Risk

A split estate is when surface rights and mineral rights on a property are owned by different parties. For example, one party may own the surface rights to farm the land, build a house or graze cattle on a property, but another party holds the right to the minerals on the same property. A mineral owner is entitled to extract the minerals under a property, using reasonable means to access said minerals, even if extracting the minerals may damage or otherwise impact the surface owner's use of the property. Given the prevalence of split estates across Colorado, the Exchange anticipates a number of credit sites with surface but not mineral ownership of their properties.

Deleted: authorized

Deleted: on

Split estates are more risky as credit generating sites because of the potential for the mineral owner to develop minerals and undermine or negate the conservation work of the surface owner in the process. To account for the risk of split estate development, an additional reserve account contribution of 7% is required on all credit transfers to the Exchange Administrator.¹⁷ The reserve account is designed to help manage the risk of development of sites with split estates when the potential benefit for the species outweighs the potential risk of mineral development. Therefore, if a Credit Developer can demonstrate to the Exchange Administrator that there is a legal agreement that mineral rights will not be developed for the duration of the credit project or similar mechanism exists that will reasonably ensure protection for the habitat function on the credit project for the duration of the project, each transfer of credits from that credit project will be exempt from the split estate contribution. This exemption can apply to public or private credit projects.

See [Credit Site Eligibility](#) (Section 2.2.5) for more information on how to determine if a credit site has an elevated risk of development and is not therefore eligible to generate credits.

RESERVE ACCOUNT MANAGEMENT

The Exchange Administrator reviews the balance of the reserve account annually at a minimum and may propose adjustments to the required contribution to be approved by the Oversight Committee as part of the Exchange adaptive management process. The Exchange Administrator may also propose removing or revising any exemptions to the required contributions, to be approved by the Oversight Committee. The Exchange Administrator can propose the required contributions be adjusted upward or downward as needed to account for insufficient or excessive amounts of reserve credits.

Use of the reserve account is described in [Reversals & Use of the Reserve Account and Financial Assurances](#) (Section 2.5.5).

2.5.4 FINANCIAL ASSURANCES

Financial assurances are fiscal mechanisms that are used to ensure the successful generation of credits throughout the duration of a credit project. Financial assurances are defined in each Participant Contract with Credit Developers and consist of:

1. Contract terms (such as financial penalties for intentional reversals and specific payment terms) or
2. Financial instruments (such as long-term stewardship funds and contract surety bonds that ensure funds are available for the long-term management of each credit project).

Both contract penalties and financial instruments ensure that funds are available to promptly replace credits that have been sold but become invalidated due to intentional or unintentional reversals. The following overarching principles and basic minimum requirements guide the development of financial assurances for each Credit Developer:

- Minimize financial transaction costs and maximize payments to Credit Developers
- Appropriately allocate risk to Credit Developers and not solely to the Exchange Administrator
- Preferably use mechanisms that do not require the Exchange Administrator to engage in costly litigation with Credit Developers to secure funds for credit replacement
- Include provisions that hold to the principal of “no payments for projects that are not producing credits,” even in the case of force majeure if a project has been deemed inappropriate to remediate

¹⁷ See Appendix for more information on the varying estimates of the level of risk of mineral and split estate development.

- Design financial instruments to cover long-term management of credit project sites and replacement of credit reversals considering:
 - Management and maintenance activities defined in Management Plan
 - Administrative fees related to the enrolled credit project
 - Appropriate fund management and rate of return
 - Relevant inflation rates
 - Credit market price trends

FINANCIAL ASSURANCE DESIGN & MINIMUM REQUIREMENTS

The Exchange requires that Credit Developers establish appropriate financial assurances for each credit project site in order to sell credits. Financial instruments must be held either by the Exchange Administrator or a qualified third party institution that is approved by the Exchange Administrator.

Minimum Financial Assurance Requirements

The Exchange Administrator and Credit Developer will define a financial assurance package that is acceptable to the Credit Developer and ensures funds are sufficient to:

- Cover all anticipated costs expected to implement required management actions and maintain habitat function as defined in the Management Plan for the duration of the contract
- Ensure contingency funds are available to address periodic project-related costs that are likely to occur
- Ensure an ongoing financial incentive that is greater than the anticipated cost to maintain the project

The specific financial assurances package can be a combination of the various mechanisms described above (i.e., long-term stewardship funds, bonds, contract penalties, contract payment terms, etc.) that ensure sufficient funds are available to meet the above needs. If a long-term stewardship fund is used, the expected financial return from appropriately investing the funds can be factored into the initial deposit amount.

Financial Instruments

The type of financial instrument required is determined by the duration of the credit project. Permanent credit projects require a long-term stewardship fund where the principal amount is managed in perpetuity. Long-term stewardship funds are similar to the non-wasting endowment funds used in conservation banking. Permanent credit projects are required to meet the same standards for financial assurances that are used in conservation banking. Term credit projects require a long-term stewardship fund that is typically managed such that no funds remain at the end of the contract. For those debit projects that are mitigating a permanent impact using a dynamic offset approach, the Aggregator or Exchange Administrator must secure a long-term stewardship fund where the principal does not decrease in value over time and has sufficient funds to secure new term credit project contracts into perpetuity.

All financial instruments should be interest bearing. The Exchange Administrator determines the required principal amount for each credit project site using a predictive financial model that accounts for economic and financial conditions such as inflation and interest rates. If a long-term stewardship fund is used, the expected financial return from appropriately investing the funds can be factored into the initial deposit amount.

Contract Terms

The Exchange Administrator may require specific contract terms in Participant Contract to ensure ongoing performance from credit projects. One type of contract term that can be defined is terms of payment. The terms of payment can create a strong ongoing incentive for the Credit Developer to achieve performance and reduce the need for financial instruments. One such payment term structure involves paying the Credit Developer an annual payment that is at least as much as the anticipated maintenance and other ongoing costs and likely includes sufficient funds for profit. Payments may be structured to provide an additional amount on years when third-party verification is performed and the credit site is shown to perform at or above expected performance. Payments can also be structured such that the long-term stewardship fund is sufficient to make payments for the full duration of the project. In this case, the Participant Contract defines that if performance standards are not met, the remaining stewardship funds can be used by the Exchange Administrator to either remediate the credit site or to purchase credits from a different site. These payment terms align the incentives of the Credit Developer and the Exchange Administrator by sharing the financial risk for ongoing performance.

In situations where the Exchange Administrator either does not make ongoing payments or the contract is structured to make a large upfront payment to the Credit Developer, other financial instruments, (such as performance bonds,) may be used to ensure sufficient funds are available to the Exchange Administrator throughout the duration of the project should a credit reversal occur. Any financial instrument must clearly delineate what portion of funding is available to the Exchange Administrator to replace credits in the event of unintentional reversals, and an additional amount available to the Exchange Administrator in the event of intentional reversals.

The other type of contract term that can be defined and required by the Exchange Administrator is contract penalties. In the case of intentional reversals, the Credit Developer pays contract penalties to the Exchange Administrator to ensure sufficient funding to purchase credits from another credit project site.

2.5.5 REVERSALS & USE OF THE RESERVE ACCOUNT AND FINANCIAL ASSURANCES

Depending on the specific cause and circumstances of the reversal, invalidated credits can be replaced using a combination of the reserve account and financial assurances, as illustrated in Figure 2.4.

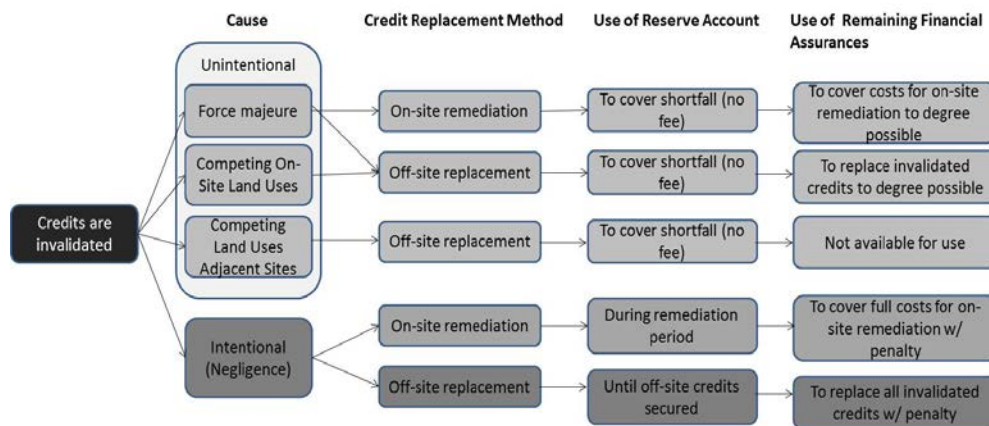


Figure 2.4: Credit invalidation replacement process

UNINTENTIONAL REVERSALS

Force Majeure

In the case of an unintentional reversal from force majeure events, the Exchange Administrator withdraws credits from the reserve account to cover the invalidated credits at no cost to the Credit Developer. In cases where the credit site can be fully or partially recovered within a reasonable amount of time and cost, the Credit Developer has the option to develop a remedial action plan that is approved by the Exchange Administrator. In this situation, contract payment terms or financial instruments are used to pay for activities included in the remedial action plan. If only a portion of the credits are recovered following the force majeure event, then payments are reduced according to the amount of credits actually being generated on the ground, if applicable. The Exchange Administrator may use the remaining amount in the project site's financial assurances to purchase credits elsewhere. In cases where the credit site cannot be recovered within a reasonable amount of time and cost, the Exchange Administrator or the Credit Developer has the option to cancel or amend the contract without penalties and the ability to re-enroll the site as a different project at a later time. If the contract is canceled, payments to the Credit Developer cease immediately, if applicable, and the Exchange Administrator uses the remaining amount in the project site's financial assurances to purchase credits from a different credit site.

Competing On-site Land Use

In the case of an unintentional reversal due to competing land uses on-site (such as split estate minerals development), the Exchange Administrator will withdraw credits from the reserve account to cover the invalidated credits at no additional cost to the Credit Developer. Similar to the policies described for force majeure events, if the impact of the competing land use reduces credit generation on a credit site, payments are reduced according to the amount of credits actually being generated. The Exchange Administrator uses the remaining funds in the project site's financial instrument to purchase credits elsewhere to the extent feasible. If the impact of the competing land use results in the credit site not being able to generate credits as expected, the Exchange Administrator or the Credit Developer has the option to cancel or amend the contract without penalties.

Competing Land Use on Adjacent Sites

There may be cases where verification shows that competing land uses on sites adjacent to enrolled credit project may be impairing the ability of the enrolled credit project site to generate benefit for the species in a way that was not anticipated when the Participant Contract and Management Plan for the project were developed. For example, a neighboring site may be developed for minerals or residential house. These occurrences are out of the direct control of the Credit Developer. Therefore, in cases of unintentional reversals due to competing land uses on adjacent sites, the Exchange Administrator will withdraw credits from the reserve account to cover the invalidated credits at no cost to the Credit Developer. In these cases, the Exchange Administrator and the Credit Developer will agree whether to continue the project or to use the remaining financial assurances for the credit project to purchase replacement credits.

INTENTIONAL REVERSALS

In the case of an intentional reversal (such as not implementing management activities to achieve habitat quality as defined in the Management Plan or intentional mineral development), all payments to the Credit Developer immediately cease, if applicable. The Credit Developer and Exchange Administrator determine if a remedial action plan can be developed or if credits must be replaced off-site. The Credit Developer is responsible to the Exchange Administrator for the entire cost of purchasing replacement credits from a different credit site, any associated legal fees and an additional 10% administrative fee (i.e., contract penalty). Further, the Exchange Administrator may access the project's financial assurances if the Credit Developer fails to fulfill his or her responsibilities. If there is a time lag between the intentional reversal and the recovery of the site, the Exchange Administrator will withdraw from the reserve account for a limited duration to prevent any gaps in coverage for sold credits. Similarly, if there is a time lag between the intentional reversal and when the Exchange Administrator secures new credit contracts, the Exchange Administrator will withdraw from the reserve account for a limited duration to prevent any

gaps in coverage for sold credits. The credit withdrawal from the reserve account ceases as credits are acquired to cover the remainder of the contract.

SECTION 3 EXCHANGE OPERATIONS

This section outlines the operations of the Exchange, along with associated tools, forms and templates used to quantify, track, transfer and report on credits generated through the Exchange. The operations of the Exchange are described in the following three chapters:

Table 3.1: Overview of the Operations of the Exchange Sections

CHAPTER NAME	PRIMARY AUDIENCE	DESCRIPTION
Chapter 3.1: Generating Credits	Credit Developers	Steps for estimating and verifying quantified credits from an individual credit site, including fulfilling ongoing verification requirements. These steps are primarily implemented by Credit Developers.
Chapter 3.2: Acquiring Credits	Buyers	Steps to obtain credits and use them to meet mitigation requirements and report accomplishments. These steps are primarily implemented by Buyers.
Chapter 3.3: Managing the Exchange	Exchange Administrator	Steps to systematically evaluate new information, report results and improve operations. These steps are primarily implemented by Exchange Administrators.

3.1 GENERATING CREDITS

QUESTIONS ANSWERED

- How does a Credit Developer estimate expected credits from planned management practices?
- How are monitoring and verification results used to determine the amount of credit released?
- How does a Credit Developer and the Exchange Administrator resolve issues and questions, and agree to final credit estimates and release schedules?

Deleted: issued

This chapter describes the process of turning management actions into verified credits. It begins by selecting a site and determining eligibility to generate credits, estimating credits from projected actions and verifying that on-the-ground conditions are consistent with the submitted credit estimates. Credits are then release, tracked and transferred between Credit Developer and Buyer accounts. After transfer, the Credit Developer is responsible for meeting the reporting and verification requirements of each project for the duration of the project (described in [Section 3.1.3](#)). Figure 3.1 and Table 3.2 provide an overview of the steps of credit generation and the different participants engaged at each step. The term credit project is used to generically refer to projects that produce benefit to species habitat, including both mitigation credits and conservation certificates. As described in [Metrics](#) (Section 2.2.4), conservation certificates are exempt from several process steps described in this section and these exemptions are noted throughout the section.

Deleted: issued



Deleted: Issue

Figure 3.1: Credit Generation Overview

Effective credit projects result in improved habitat and environmental conditions. Effectiveness depends both on implementing a quality project design and ensuring the project site is maintained to produce the expected environmental outcomes. Sections 3.1.1 and 3.1.2 define the process for estimating the number of credits generated from implementing the credit project. Section 3.1.3 defines the process to verify that actual on-the-ground conditions support the expected credits over time. Section 3.1.4 and 3.1.5 describe how credits are released, tracked and transferred.

Deleted: issued

Table 3.2: Overview of Roles, Tools & Products to Estimate, Verify, ~~Release~~ & Track Credits from Projects

Process Step	Credit Developer	Exchange Administrator	Buyer	Relevant Tools, Forms & Templates	Completed Products
Select & Validate Site	■	■	□	<ul style="list-style-type: none"> Validation Checklist 	<ul style="list-style-type: none"> List of Conservation Opportunities Notice of Validation
Implement & Calculate Credit	■	■		<ul style="list-style-type: none"> Habitat Quantification Tools (HQTs) & Associated forms Management Plan Participant Contract Verification Contract 	<ul style="list-style-type: none"> Pre-project draft Management Plan Final Management Plan
Verify Conditions	■	■		<ul style="list-style-type: none"> Conflict of Interest Form 	<ul style="list-style-type: none"> Verification Report Self-Monitoring Report
Register & Release	■	■		<ul style="list-style-type: none"> Registry Account 	<ul style="list-style-type: none"> Registered Credit Project Released Credits
Track & Transfer Credits	■	■	■	<ul style="list-style-type: none"> Notice of Transfer Form 	<ul style="list-style-type: none"> Accomplishments Report (optional)
■ Indicates a necessary or active role □ Indicates potential participation or a support role					

Deleted: Issue

Deleted: Issue

Deleted: Issued

3.1.1 SELECT & VALIDATE PROJECT SITE



Deleted: Issue

Figure 3.2: Select & Validate Project Site

In this step, the Credit Developer identifies a project site that is likely to produce credits and the Exchange Administrator validates that the site is eligible to produce credits through the Exchange.

INDICATE INITIAL INTEREST & INITIATE COMMUNICATION

This first step for the Credit Developer is to become aware of the opportunity to participate in the Exchange. The Credit Developer is introduced to the Exchange through outreach, communication materials or word of mouth and learns about the potential benefits of participating. The Credit Developer or the Credit Developer's representative makes contact with the Exchange Administrator by email or phone to provide basic information, such as name, area of interest and contact information. The Exchange Administrator provides a list of technical support providers in the project area to assist with project design, credit quantification and project implementation.

The Exchange Administrator provides the Credit Developer with login information for the Online Tracking Platform. The Online Tracking Platform¹⁸ automates much of the workflow, provides easy

¹⁸An Online Tracking Platform is anticipated to be developed in the future. Until it is available for use, all operations will be completed using the downloadable tools, forms and templates that are identified in this Exchange Manual available from the Exchange Administrator

access to the guidance documents and acts as a centralized place to store documents related to credit generation.

Product ■ Indication of Interest

SELECT PROJECT SITE

The Credit Developer considers potential project opportunities, the likelihood that a project will deliver significant environmental benefits and the potential costs and challenges to implement the project. Technical support providers or aggregators can assist Credit Developers with these considerations.

OPEN ACCOUNT & ADD PROJECT

The Credit Developer starts a new project on the Online Tracking Platform and enters the general information about the project in the Project Information Worksheet.

Product ■ Completed Project Information Worksheet

SUBMIT PROJECT VALIDATION CHECKLIST

The Credit Developer completes an eligibility screen that evaluates a site's ability to generate credits. This step is typically supported by a knowledgeable technical support provider who helps the Credit Developer complete a Validation Checklist Form. This checklist records the proposed management practices, timeline and location of a proposed project site. It also confirms certain minimum eligibility criteria is met, such as basic information related to ownership, site history and land protection. Credit Developer submits a Validation Checklist Form through the project account created on the Online Tracking Platform.

Product ■ Completed Validation Checklist Form

VALIDATE & IDENTIFY CONSERVATION OPPORTUNITY

The Exchange Administrator reviews the Validation Checklist. If all validation criteria are met, the Exchange Administrator coordinates approval from any additional validation leads (such as relevant regulatory agencies) and issues a Notice of Validation to the Credit Developer. The Notice of Validation is a statement that the project is eligible to generate credits if all information provided is accurate and complete. It is not a confirmation of the estimated quantity of credits to be released. All information and documentation provided in the Validation Checklist is reviewed in greater depth during verification described in Section 3.1.3.

Deleted: issued

If validation criteria are not met, the Exchange Administrator provides reasons why the project may not be eligible to participate in the Exchange.

The Exchange Administrator maintains a list of projects seeking funding for implementation while respecting confidentiality rules outlined in [Participant Confidentiality](#) (Section 2.1.4). The Exchange Administrator may include the credit project on its List of Conservation Opportunities, if desired by the Credit Developer.

Product ■ Notice of Validation

Product ■ List of Conservation Opportunities

3.1.2 IMPLEMENT PROJECT & CALCULATE CREDIT



Figure 3.3: Implement & Calculate Credit

Typically, a technical support provider or aggregator assists the Credit Developer in designing the credit project, drafting the Management Plan and estimating the expected credit amount using the HQTs. Credit calculation must be done by a person well-versed in the HQTs. The Credit Developer has the option to check the design calculations with the Exchange Administrator to gain confidence that the initial estimate of credits is accurate. Typically, practical opportunities and constraints that arise during implementation cause actual conditions to differ from design plans. Thus, final calculations must be revised to reflect actual post-project conditions.

Alternatively, the Credit Developer may wait to calculate benefits until the project is complete and then perform all calculations using post-project conditions. If this is the desired course of action, care must be taken to thoroughly document pre-project conditions using the HQTs. Project proponents are advised to consult with the Exchange Administrator before initiating credit project implementation.

DESIGN & CALCULATE PRE-PROJECT CONDITIONS

The Credit Developer follows the process defined in the HQTs to define the credit project boundaries and estimate expected post-project conditions based on site design. Guidance for selecting the appropriate duration of a credit project is included in the HQTs and the Management Plan template.¹⁹ Project boundaries, planned management actions (including ongoing maintenance and monitoring), project duration and expected post-project conditions for the site are documented in the pre-project draft Management Plan. The Credit Developer or Technical Support Provider fills in the pre-project data results from the field inventory, completes any necessary calculations using the HQTs and provides the completed field datasheets to the Exchange Administrator.

Product ■ Pre-project HQT Results with Associated Forms

DEFINE & SUBMIT PROJECT DESIGN INFORMATION

The Credit Developer completes a pre-project draft Management Plan that defines credit project boundaries and anticipated post-project conditions, based on initial HQT estimates. The Credit Developer can elect to include multiple credit project design scenarios in the pre-project draft Management Plan to estimate and compare the amount of credit generated from different design options. The pre-project draft Management Plan is submitted to the Exchange Administrator for pre-approval, prior to the implementation of management practices. These steps are described in further detail below.

Submit Draft Management Plan to Exchange Administrator for Pre-Approval

The Credit Developer submits the pre-project draft Management Plan to the Exchange Administrator for pre-approval before initiating project implementation to ensure that the credit calculations are correct given the design assumptions included. The pre-project draft Management Plan may contain multiple project design scenarios with associated credit calculations. If appropriate and requested by the Credit Developer or a potential Buyer, regulatory entities may also be involved in this pre-approval check to

¹⁹ Note that pre-project and post-project boundaries must be exactly the same to develop an accurate comparison between pre- and post-project conditions.

confirm the credit project meets any special requirements necessary for regulatory approval. This optional step gives the Credit Developer confidence with the amount of credits expected from the project if the conservation measures are implemented as designed.

Product ■ Draft Pre-Project Management Plan

Secure Project Implementation Funding (If Applicable)

The Credit Developer secures any necessary funding to implement the project, as needed. For restoration projects, the Exchange Administrator may require proof of financial assurances for the construction period. The full set of financial assurances is not required until step D2.3 when all materials are submitted to the Exchange Administrator to signal readiness for verification.

Product ■ Proof of Construction Period Financial Assurances (if applicable)

IMPLEMENT PROJECT, REFINE CALCULATIONS & SUBMIT

Implement Project

The Credit Developer, Technical Support Provider, or Aggregator implements the project with the understanding that final credit amounts will be based on actual post-project conditions. The ability to adjust calculations based on site design enables the Credit Developer to identify additional opportunities to make improvements during project implementation and enables practical adjustments that may be necessary due to unforeseen site constraints.

Product ■ Completed Credit Project

Confirm or Refine Credit Calculations

The Credit Developer either confirms that the project was completed consistent with the submitted pre-project draft Management Plan or includes a new project design scenario that accurately reflects post-project conditions. If post-project conditions differ from design expectations or if pre-project calculations were not completed, the Credit Developer uses the HQTs to calculate the number of credits generated using post-project conditions.

Product ■ Revised draft Management Plan

Refine Management Plan & Credit Release Schedule

The Credit Developer further refines the draft Management Plan to define the specific management actions and expected outcomes for the site including ongoing maintenance and monitoring requirements. The Credit Developer also includes a credit release schedule in the Management Plan, defining the amount of credits released based on the implementation of management actions and achievement of the desired habitat conditions as indicated by the HQTs.

Product ■ Management Plan

Secure Financial Assurances

The Credit Developer must secure necessary financial assurances if required by the Exchange – see [Financial Assurances](#) (Section 2.5.5) for additional guidance. Financial assurances ensure that funds are available to cover credit shortfalls and support long-term management of individual project sites as specified in the Management Plan.

Product ■ Management Plan – Proof of Secured Financial Assurances

Submit Post-Project Calculations & Documentation

The Credit Developer submits the final credit estimate and all required documentation to the Exchange Administrator for verification reflective of post-project conditions. Once the Exchange Administrator verifies the credit estimates and other documentation, the Management Plan is finalized and the Credit Developer and Exchange Administrator sign a Participant Contract.

Product ■ Signed Participant Contract

Product ■ Final Management Plan

Establish Verification Contract

The Credit Developer completes a contract with the Exchange Administrator for verification services.

Product ■ Completed Verification Contract

3.1.3 VERIFY CONDITIONS



Figure 3.4: Verify Conditions

All projects require verification. Verification is an independent, expert check on the credit estimates provided by the Credit Developer, Technical Support Provider, or Aggregator. The required frequency of verification is defined in [Section 2.5.2](#).

Initial project verification is completed for the credit project before credits are released and periodically over the life of the project as defined in Section 2.5.2. Self-monitoring reports must be completed in non-verification years to confirm that conditions are maintained according to the specifications in the Management Plan.

Deleted: issued

SELECT VERIFIER

Upon receiving completed documentation and a finalized contract for verification services from the Credit Developer, the Exchange Administrator assigns an accredited third-party Verifier to perform a full verification.

Verifiers must be accredited by the Exchange Administrator before they are eligible to conduct verification activities. The independence of verification is important. Verifiers acting on behalf of the Exchange Administrator must work in a credible, independent, nondiscriminatory and transparent manner, complying with applicable state and federal law. Verifiers must demonstrate their ability to professionally assess a specific type of credit without conflicts of interest. This includes disclosing any pre-existing relationships between the Credit Developer or Buyer and the Verifier. Verifiers must provide a *Conflict of Interest* Form to the Exchange Administrator before verification can proceed.

Becoming an Accredited Verifier

The Exchange Administrator will accredit Verifiers to review one or more types of credits. Verifiers will act as subcontractors to the Exchange Administrator. Verifiers bear no liability for project implementation or project performance. Interested Verifiers must complete the following steps:

- Attend a Verification Training Session
- Keep the Exchange Administrator informed of any changes affecting the accreditation (e.g., potential conflicts of interest)
- Participate in a refresher course held by the Exchange Administrator at least biannually

Product ■ Completed Conflict of Interest Form

Product ■ Assigned Verifier

PERFORM ONGOING PROJECT MAINTENANCE AND MONITORING

The Credit Developer is responsible for monitoring and maintaining project conditions throughout the duration of the project to ensure that on-the-ground conditions reflect the information provided in the

verified credit estimate and Management Plan. In years when an on-site verification is not required, the Credit Developer submits a Self-Monitoring Report to the Exchange Administrator in accordance with the requirements defined in [Section 2.5.2](#) and the specifics in the Management Plan. Conservation certificates are not subject to ongoing monitoring requirements.

Product ■ Self-Monitoring Report (non-verification years)

PROJECT VERIFICATION

The Verifier confirms that:

- The Exchange Manual was followed completely and accurately as appropriate.
- The appropriate documentation is in place (e.g., land protection or management agreements).
- The amount of credit ~~released~~ for a project is appropriate given actual, on-the-ground conditions as verified through the HQTs.
- For sites with future credit releases scheduled, conservation actions have been implemented and the desired performance standards have been achieved as indicated by the HQTs.

Deleted: issued

The Verifier performs a review of all relevant forms and documentation before scheduling a site visit with the Credit Developer.²⁰ The Verification Report is completed with information gathered during the site visit using the applicable HQT user manual. An example Verification Report and the applicable HQT user manual are available on the Exchange website.

Credit calculations must be found to be free of material misstatements and meet the performance standards defined in the Management Plan. If performance standards are not met, the Verifier discusses the issues with the Exchange Administrator. The Credit Developer and Exchange Administrator determine if corrective actions are necessary and appropriate, and the Exchange Administrator determines the appropriate amount of credit to be awarded given site conditions. If appropriate corrective actions or amount of credit cannot be agreed to by the Credit Developer and Exchange Administrator, they follow the dispute resolution process by engaging the Oversight Committee as needed.

Dispute Resolution Process

The following guidance is provided to settle disagreements that may occur between a Credit Developer, Verifier, Buyer, agency and/or Exchange Administrator.

- First, attempt to resolve the dispute through direct conversation.
- Second, engage the Exchange Administrator to facilitate resolution.
- Third, employ the Oversight Committee dispute resolution process.

Submit Project Verification Report

Once successful verification is complete, the Verifier submits their Verification Report to the Exchange Administrator. The Verification Report contains a summary of verification activities, an opinion on the credit estimates and a log of activities and findings.

Product ■ Verification Report

²⁰ Verifiers follow a defined Verification Protocol that is the focus of the Verifier certification training conducted by the Exchange Administrator.

3.1.4 REGISTER PROJECT & RELEASE CREDITS

Deleted: ISSUE



Deleted: Issue

Figure 3.5: Register & Release Credits

Deleted: Issue

Registration ensures that credits from a specific project are real, transparent and traceable throughout the entire life of the project. All verified and certified credits generated through the Exchange must be registered. Supporting information related to each credit include vintage (year released), HQT and Manual version used, duration of the credit, and owner of the credit.

Deleted: issued

CREATE A REGISTRY ACCOUNT

The Credit Developer sets up an account on the registry. Once a Credit Developer establishes a user account, any number of projects can be registered under the same user account. The Exchange Administrator provides detailed guidance on using the registry. All information included on the registry is subject to the confidentiality provisions described in [Participant Confidentiality](#) (Section 2.1.4). The Credit Developer may contact the Exchange Administrator for help in opening an account.

Product ■ Registry Account

REGISTER PROJECT

The Credit Developer can register a project site as soon as a project is validated ([Section 3.1.3](#)). A project must be registered before credits can be released or transferred to Buyers. Registering a project does not indicate a release of credits into the user or project account on the registry (see Release of Credits below). The Credit Developer begins a new project on the registry and uploads all required documentation or otherwise provides it as specified by the Exchange Administrator.

Exchange Administrator Review

The Exchange Administrator reviews all documentation before the project is registered. If errors are found or additional documentation is needed, the Exchange Administrator contacts the Credit Developer to request the needed information.

Product ■ Registered Credit Project

RELEASE CREDITS

The Credit Developer requests release of credits after verification is complete and all required documentation is submitted to the Exchange Administrator. The Exchange Administrator confirms all documentation is complete and the amount of credits registered is correct and releases the credits to the Credit Developer's registry account.

Deleted: issuance

Deleted: issues

Product ■ Released Credits

Deleted: Issued

3.1.5 TRACK & TRANSFER CREDITS



Figure 3.6: Track & Transfer Credits

Credits released on the registry are assigned unique serial numbers so that they can be tracked over time. Once released, credits can be sold or transferred between registry accounts. The sale, transfer and ownership of each credit are tracked by the registry. The terms of payments and sales are completed external to any of the registry or Exchange Administrator processes. All registry activities, including credit transfers, are monitored by the Exchange Administrator.

Deleted: issued

Deleted: issued

ALLOCATE CREDITS TO RESERVE ACCOUNTS

Reserve account allocation requirements are defined in [Section 2.5.4](#) and identified for the specific project. As described in [Section 2.2.4](#), conservation certificates are exempt from contributing credits to the reserve. The Exchange Administrator allocates the appropriate amount of credits for applicable projects to the reserve account upon transfer to a Buyer. Credits allocated to the reserve account are not available for sale.

Product ■ Notice of Transfer From

SELL AND TRANSFER OR RETIRE CREDITS

Credit Developers and Buyers connect via the registry, the Exchange Administrator, or other avenue. The price, terms and conditions are all set by the Credit Developers and Buyers and are completed external to any of the registry or Exchange Administrator processes with the exception of provisions provided in the Participant Contract and Master Credit Purchase Agreement. Once an agreement is complete, the Buyer and Credit Developer submit a Notice of Transfer Form to the Exchange Administrator. The Exchange Administrator transfers credits between accounts and assesses appropriate transaction fees.

All listed credits can be transferred between accounts until they expire and are no longer available to be transferred to another Credit Buyer. A Credit Developer may resell and retransfer credits that have not been obligated and are no longer being used to fulfill credit obligations for another Credit Buyer, in accordance with applicable provisions outlined in [Mitigation Credits and Conservation Certificates](#) (Section 2.2.4). Once credits are obligated, the registry moves them into an obligated credit account that can be reported on but not accessed for transfer.

Credits purchased but not immediately used for mitigation are subject to the guidance in [Section 2.2.4](#) related to credit purchase requirements. The portion of credits from each transaction that are dedicated to the reserve account is released directly to the reserve account, which can be accessed by the Exchange Administrator in the future for authorized uses. (See [Reversals](#) Section 2.5.5.)

Deleted: issued

Product ■ Notice of Transfer Form

Product ■ Transfer of Credits between Accounts

REPORT OF ACCOMPLISHMENTS (OPTIONAL)

The Exchange Administrator generates reports that summarize the amount of credit generated from each registered project and the total amount of credit generated from all registered projects. Supporting information related to each credit can also be produced, including vintage (year released), HQT and

Deleted: issued

version and duration of the credit. Reports can also be generated that show transfers of credits and obligated credits.

Product ■ Accomplishments Report (optional)

3.2 PURCHASING CREDITS FROM THE EXCHANGE

QUESTIONS ANSWERED

- How does a Buyer use credits to demonstrate mitigation requirements have been met?
- How does a Buyer use credits to report on the accomplishments of their investments?



Figure 3.7: Credit Purchase Overview

This section describes the process to acquire credits. Buyers of credits include entities mitigating for impacts to fulfill regulatory requirements and entities seeking to improve the environment. The Exchange enables private and public Buyers to efficiently invest with confidence, knowing that quantified environmental benefits are consistently defined, transparent and traceable. Buyers can increase efficiency by relying on the structure of the Exchange to guide project design and verify that completed projects deliver expected environmental benefits. This increases accountability with Credit Developers and allows for greater coordination with other Buyers to fund large-scale projects. Further, credits provide Buyers with quantitative information to evaluate and report on the environmental value generated from their investments. Figure 3.7 and Table 3.3 provide an overview of the steps of credit purchase and the different participants that may be engaged at each step

Process Step	Credit Developer	Exchange Administrator	Buyer	Relevant Forms & Templates	Completed Products
Indicate interest		□	■	▪ Indication of Interest	▪ List of Identified Credit Developers & Buyers
Determine Credit Need		■	■	▪ Credit Obligation & Project Design Form ▪ Verification Contract	▪ Credit Need Specifications ▪ Project Baseline Assessment ▪ Verification Report ▪ Estimated Credit Obligation
Purchase & Acquire Credits	□	■	■	▪ Registry Account	▪ Notice of Transfer
Track & Transfer	■	■	■	▪ Notice of Transfer Form	▪ Annual Accomplishments Report (optional)
■ Indicates a necessary or active role □ Indicates potential participation or a support role					

Table 3.3: Overview of Roles, Tools & Products to Purchase, Track and Report Credits

3.2.1 INDICATE INTEREST



Figure 3.8: Indicate Interest

The Buyer defines their investment goal and selects an appropriate strategy for acquiring credits.

INDICATE INITIAL INTEREST & INITIATE COMMUNICATION

This first step for the Buyer is to become aware of the opportunity to participate in the Exchange. The Buyer is introduced to the Exchange through outreach materials or word of mouth and learns about the potential benefits of participating. The Buyer or the Buyer's representative contacts the Exchange Administrator to provide basic information, such as name, area of interest and contact information. General information for how credits can be used to meet regulatory requirements is provided in [Section 2.1.2](#) and [2.1.3](#) with specific requirements in permits and regulatory instruments. The Exchange Administrator provides a list of technical support providers in the project area who can assist with developing an investment strategy, if this assistance is desired.

The Exchange Administrator provides login information for the Online Tracking Platform. The Online Tracking Platform automates much of the workflow, provides easy access to guidance documents and acts as a centralized place to store documents related to credit generation and purchase.

Product ■ Indication of Interest

Product ■ Buyer Credit Tracking Platform Account (if needed)

Product ■ List of Identified Credit Developers & Buyers

3.2.2 DETERMINE CREDIT NEED



Figure 3.9: Determine Credit Need

Buyers determine the geographic region, duration and amount of credit needed to best meet their regulatory requirements or investment goals.

DETERMINE APPLICABLE GEOGRAPHY & PROJECT CHARACTERISTICS

The Buyer identifies the specific geographic region from which to purchase Credits, in accordance with their investment goal and guidance provided in [Section 2.1.6](#). Service Areas ([Section 2.2.1](#)) define the applicable geographic scope of the Exchange and specific service areas with unique characteristics, as well as limitations for trading credits and debits across service areas. Buyers must meet all requirements or specifications of regulatory documents and permits, as appropriate. Buyers may also choose to focus investment within a specific geographic area to achieve unique investment goals.

The Buyer and Exchange Administrator must determine the duration or term to purchase credits. Credit projects produce credits for specific durations of time. [Section 2.4.1](#) defines specific parameters for project duration. Regulatory requirements typically specify that the duration of credits must be at least as long as

the duration of the debit and that the credits be acquired before impacts occur. These specifications are outlined further in Section 2.4.1.

The Buyer may also be interested in other characteristics that would focus investment on specific project types or Credit Developers. For instance, the Buyer may want to only invest in projects that produce new habitat on working lands from small farmers and ranchers.

Product ■ Determination of Credit Needs Specifications

DETERMINE CREDIT AMOUNT (REGULATORY CREDIT BUYERS ONLY)

Each Buyer defines their needed or desired amount of credit. If the Buyer is not in a regulatory context, skip ahead to Section 3.2.3.

The remainder of this step defines the process to determine the amount of debit resulting from development activities and the associated amount of credit obligation needed to offset these impacts in a regulatory context, unless the permit process or regulatory agency provides a different process to determine credit requirement. Full compliance with all relevant laws and rules is required before credits can be used to satisfy the remaining regulatory requirements from unavoidable impacts.

Debits are quantified and verified units of functional acre loss. The process to calculate and verify debits is the same as the process to quantify credits except that verification occurs prior to project implementation. The following sections are a summary of that process. See [Section 3.1.2](#) for additional detail.

Begin Project on the Online Tracking Platform

The Buyer begins a project in the Online Tracking Platform and defines the project boundary.

Define & Submit Baseline Assessment

For debits, baseline is generally defined as pre-condition of the site prior to the implementation of any debit project. See [Baseline](#) (Section 2.3.1) for more information. Debit sites may require a field assessment to determine pre-project conditions. The Buyer, along with a technical support person familiar with greater sage-grouse habitat, conducts an assessment of the project area and applies the applicable HQTs to calculate the baseline site functionality. Field and data collection forms are used to run the HQTs and generate a function score. The project baseline information, associated documentation and HQT scores are submitted through the Online Tracking Platform.

As described later in this step, third party verification commissioned by the Exchange Administrator of debit baseline scores is required before the debit project can be implemented. See [Baseline](#) (Section 2.3.1) and [Verification](#) (Section 2.5.2) for more information on how the Buyer can work with a third-party Verifier to estimate and verify baseline given potential constraints in data collection timing and Buyer needs to avoid a delay in the permitting process.

The Exchange Administrator reviews the baseline information and confirms all calculations are complete and consistent with relevant regulatory guidance and allows the project to proceed. Science staff from any relevant regulatory agencies will be given the opportunity to review debit project baseline through documentation and site visits before an impact occurs.

Product ■ Completed Baseline Assessment

Determine Credit Obligation

A Buyer's credit obligation is based on the difference between the baseline functional acres and anticipated post-project conditions. For some debit projects, the post-project condition (the condition following completion of the debit project) is assumed to have zero function. In other cases, as outlined in [Verification](#) (Section 2.5.2), the Buyer applies functional assessments of the post-project conditions. The estimated post-project habitat function assessment is produced using the baseline functional acre

assessment and development design documents defining the area, scope and activities to be completed as part of the development actions. The data sets are entered in the HQTs, which produce the functional acre loss, debits and the credit obligation, and are submitted to the Exchange Administrator through the Online Tracking Platform.

Product ■ Estimated Credit Obligation & Project Design Form

Acquire Agency Approval (If Necessary)

Consult [Integration with State Policy](#) (Section 2.1.2) and specific permit requirements to determine if agency approval is needed to use credits for regulatory offsets.

Establish Verification Contract

The Buyer completes a contract with the Exchange Administrator for verification services. A sample contract is available on the Online Tracking Platform.

Product ■ Completed Verification Contract

Verify Baseline

Verification of debits, like credits, is an independent review of all projects by third parties. Once final versions of all required documents are uploaded to the Online Tracking Platform, the Exchange Administrator reviews documentation to ensure completeness and assigns an accredited third-party Verifier to perform a full verification. Verification of debit baseline occurs before the debit project has been implemented.

Once successful verification is complete, the Verifier submits the Verification Report to the Exchange Administrator. The Verification Report contains a summary of verification activities, debit estimates and a log of activities and findings.

Product ■ Verification Report

Post-Project Verification (If Necessary)

Consult specific permit requirements to determine if post-project verification is required to ensure that the amount of debit is not greater than what was estimated during project design.

3.2.3 ACQUIRE CREDITS



Figure 3.10: Acquire Credits

CREATE A BUYER ACCOUNT

To acquire and track credits, the Buyer first creates an account on the registry. The Buyer can use their account to transfer and manage listed credits from all debit projects. All information included on the registry is subject to the confidentiality provisions described in [Participant Confidentiality](#) (Section 2.1.4). The Buyer may contact the Exchange Administrator for help in opening a Buyer account.

Product ■ Registry Account

PURCHASE CREDITS

Credit Developers and Buyers connect via the registry or through another applicable mechanism and come to agreement on credit quantities, price, and timing of funding and other terms. The terms of payments and sales are completed between Credit Developers and Buyers external to any of the registry

or Exchange Administrator processes. Once an agreement is complete, the Buyer and Credit Developer submit a Notice of Transfer to the Exchange Administrator.

Product ■ Notice of Transfer

3.2.4 TRACK & TRANSFER CREDITS



Figure 3.11: Track & Transfer Credits

Credits listed on the registry are assigned unique serial numbers that identify the source of each credit, the HQT and version used to estimate credits, and the current owner. All registered projects are listed on the registry website and available for the public to search, subject to confidentiality provisions defined in [Participant Confidentiality](#) (Section 2.1.4). The terms of payments and sales are completed external to any of the registry or Exchange Administrator processes.

TRANSFER CREDITS

Upon receiving a Notice of Transfer Form, the Exchange Administrator transfers credits between accounts on the registry. Credits used to fulfill credit obligations are available for resale. Other credits held by a Buyer may be available for resale or transfer according to the credit purchase requirements in [Mitigation Credits and Conservation Certificates](#) (Section 2.3.4).

Product ■ Notice of Transfer of Credits between Accounts

REPORT ON ACCOMPLISHMENTS (OPTIONAL)

Exchange Administrator can generate reports for Buyers that show transfers of credits and obligated credits

Product ■ Accomplishments Reports

3.3 ADAPTIVELY MANAGING THE EXCHANGE

QUESTIONS ANSWERED

- How is the Exchange managed to implement improvements accuracy and efficiency without causing market uncertainty?
- What information is reported to ensure transparency and increase accountability?
- How are research and monitoring findings synthesized and used to improve the Exchange?
- How are Exchange improvement recommendations developed and used to inform annual Exchange improvement decisions?

The *Exchange Management System* is defined as a formal, structured adaptive management approach to deal with uncertainty in natural resources management and use the experience of management and the results of research for continuous improvement. This section describes the management process for the Exchange. The Exchange Management System requires an ongoing flow of information from: 1) research and biological monitoring activities and 2) the practical experiences of Credit Developers and Buyers to inform Exchange improvements. A transparent decision-making process ensures that the uncertainty associated with implementing changes and improvements to the Exchange is reduced. Adaptive management changes are applicable to prospective projects and not applied retroactively to projects already being implemented through the Exchange.

Monitoring and Adaptive Management will be conducted in two phases. In Phase 1, the first year of the Exchange and in lieu of a full monitoring and adaptive management plan, several important issues will be closely tracked and monitored (see Appendix F for a full description of these issues and associated adaptive management actions). By the end of Phase 1, December 2016, a full Monitoring and Adaptive Management Plan will be developed and approved by the Oversight Committee (see guidelines for this plan in Appendix F). This plan will be adopted by the Exchange and implemented from January 2017 forward. The final plan may result in changes to the process described in this section.

Figure 3.12 and Table 3.4 provide an overview of the Exchange Management System steps and the different participants potentially engaged at each step.²¹ The Exchange Administrator performs the day-to-day functions to manage the Exchange. The Exchange Administrator is accountable to the Oversight Committee, which approves all changes to the Exchange

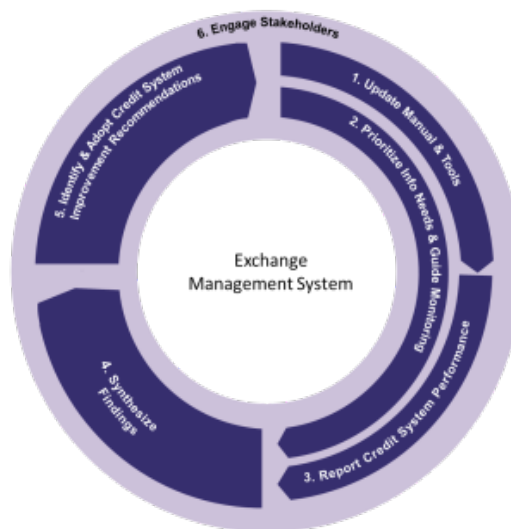


Figure 3.12: Overview of Exchange Management System Steps

²¹ This management process has been adapted from The Conservation Measures Partnership's Open Standards for the Practice of Conservation, which can be found at www.conservationmeasures.org. Significant changes were made to adapt the Open Standards to: 1) a market context where individual projects are selected and implemented by individual market participants and 2) be a formally governed process that balances the needs for improvements with the needs to limit market uncertainty for all participants.

Manual and HQTs. The composition of the Oversight Committee and the relationship between the Oversight Committee, Exchange Administrator and Exchange participants as well as the administrative funding structure are defined in [Purchasing Credits](#) (Section 2.1.6).

Table 3.4: Overview of Roles, Tools & Products to Manage Exchange Operations

Process Step	Credit Developer	Exchange Administrator	Oversight Committee	Buyer & Stakeholders	Relevant Forms & Templates	Completed Products
Update Protocol & Tools	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Exchange Improvement Recommendation Form	▪ Exchange Improvements Recommendations List ▪ New credit types or quantification tools
Prioritize Information Needs & Guide Monitoring	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Research & Monitoring Contract Templates	▪ List of Research Needs
Report Exchange Performance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Annual Exchange Performance Report Template	▪ Annual Exchange Performance Report
Synthesize Findings	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	▪ Input Request Template	▪ Synthesis of Findings Report
Identify & Adopt Exchange Improvement Recommendations	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	▪ Exchange Improvement Recommendation Form	▪ Exchange Improvements Recommendations ▪ Record of Decisions ▪ Audit Report
Engage Stakeholders	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	▪ n/a	▪ Updated Website ▪ Email Communications ▪ Community Presentations ▪ Hosted Trainings ▪ Stakeholder Meeting
■ Indicates a necessary or active role <input type="checkbox"/> Indicates potential participation or a support role						

3.3.1 UPDATE PROTOCOL & TOOLS



Figure 3.13: Update Manual & Tools

This Exchange Manual and associated tools, templates and forms (listed in Appendix B) provide guidance for the Exchange to consistently track and report benefits and impacts. Updating the Exchange Manual and associated tools, templates and forms is necessary to ensure that practical experience and

new scientific information result in Exchange improvements. This step describes the process for the Exchange to review and update tools, templates, and forms.

UPDATE EXCHANGE IMPROVEMENTS RECOMMENDATIONS LIST

The Exchange Administrator, Exchange participants and other stakeholders may make suggestions to improve the Exchange at any time throughout the year by submitting a recommendation through the Exchange website. The Exchange Administrator compiles recommendations received in the Exchange Recommendations List. The Exchange Administrator may also add improvement recommendations to the list reflecting personal experience or non-formal input received from stakeholders.

Product ■ Exchange Improvements Recommendations List

Review & Sort Improvement Suggestions

The Exchange Administrator reviews the Exchange Improvements Recommendations List periodically and categorizes suggestions according to the following definitions:

- **Category 1** improvements consist of minor administrative adjustments or clarifications to Exchange materials. Category 1 improvements may be executed by the Exchange Administrator at any time with review and approval by Oversight Committee at their next meeting.
- **Category 2** improvements are substantive changes to Exchange materials. Category 2 adjustments require input and approval from the Oversight Committee before implementation. The process for Oversight Committee review and adoption or rejection is defined in [Identify & Adopt Exchange Improvement Recommendations](#) (Section 3.3.5). When in doubt, the Exchange Administrator assigns the recommendation to Category 2.
- **Category 3** improvements necessitate adjustments to related policies if adopted. Category 3 adjustments are reviewed and approved or rejected by the Oversight Committee with consultation from the appropriate agency staff. These improvements may require agency approval and thus follow the appropriate policy change process as defined by relevant agencies.

It is at the discretion of the Exchange Administrator (albeit with guidance from the Oversight Committee) to prioritize available funding for improvements which can be successfully implemented using available resources. The Exchange Administrator annually provides an Exchange Improvements List to the Oversight Committee. The Oversight Committee decides which recommendations are to be implemented in Categories 1, 2 and 3, at the periodic meetings described in [Identify & Adopt Exchange Improvement Recommendations](#) (Section 3.3.5). For improvements that require additional resources to implement, the Exchange Administrator develops a brief implementation plan for approval by the Oversight Committee.

Deleted: , which includes Category 1 improvements implemented so that the Oversight Committee is informed

Product ■ Categorized Exchange Improvements List

UPDATE EXISTING HQTS, FORMS AND TEMPLATES

The Exchange Administrator may implement Category 1 improvements throughout the year. The Exchange Administrator implements all approved Category 2 and 3 improvements within a timeline approved by the Oversight Committee. The date at which updates go into effect should be clearly defined by the Oversight Committee with the exception that changes affecting the amount of credit generated from a project are not applied to previously registered credit projects.

Product ■ Updated Exchange Materials

INTEGRATE NEW QUANTIFICATION TOOLS (AS APPROPRIATE)

The Exchange is built to easily integrate new credit types and quantification tools. Once a new credit type or quantification tool is identified as needed, the Exchange Administrator convenes a technical committee to develop the proposed method and provide recommendations for adoption. Once improvement recommendations are addressed, the Exchange Administrator presents the proposed new credit type or quantification tool with supporting materials to the Oversight Committee for review and approval (as described in [Identify & Adopt Exchange Improvement Recommendations](#) Section 3.3.5).

Product ■ New Credit Types or Quantification Tools

3.3.2 PRIORITIZE INFORMATION NEEDS & GUIDE MONITORING



Figure 3.14: Prioritize Information Needs & Guide Monitoring

Biological monitoring and research are necessary to check that the benefits projected by the HQTs result in the anticipated improvements. The Exchange may collaborate with monitoring initiatives led by other active programs in the region or initiate its own research with approval from the Oversight Committee.

DEVELOP & ADJUST LIST OF RESEARCH NEEDS

The Exchange Administrator takes input from the Science Committee and maintains the List of Research Needs. The List of Research Needs catalogs and prioritizes research needs identified as being important to improve HQTs, better understand the effectiveness of conservation practices and follow the status and trend of the relevant species or other relevant environmental attributes of concern.

The Exchange may be able to collaborate with other monitoring programs to monitor status and trend, but is likely to take a more active role in directing monitoring intended to calibrate HQTs and improve their accuracy.

Product ■ List of Research Needs

Recommended Research and Monitoring Contract Terms

Research and monitoring contracts should reflect the need for result in clear and, timely and consistently presented- findings so that findings can be easily used to address identified needs. Specific contract requirements can increase the likelihood that funded research and monitoring projects produce directly useful findings by:

- Identifying specific questions for investigators to address through specific projects.
- Requesting a one-to-two page summary of findings that directly relates findings to identified questions and related items on the List of Research Needs.
- Requiring that reports be submitted in a timely manner so findings may be considered in the development of the Synthesis of Findings Report (Step A4). Why would findings not be considered in a report seemingly developed specifically to describe findings? Please explain.
- Requesting Requiring interim updates for long-duration projects, in order for these projects to provide insights with potential to influence current decisions and future expectations.
- Holding final payments until a draft report has been reviewed by an appropriate group of participants the Oversight Committee and review comments have been satisfactorily addressed.

PROVIDE INPUT TO RESEARCH & MONITORING FUNDING PROCESSES

The Exchange Administrator coordinates with participants, regulators, technical support, grant funders and stakeholders to identify and secure funding for priority needs identified on the List of Research Needs. Research and monitoring may be conducted through direct contracts with the Exchange funded through transaction fees or conducted through partnerships with existing research programs.

Product ■ Research & Monitoring Contracts and Results

3.3.3 REPORT EXCHANGE PERFORMANCE

Routine reporting of accomplishments assists in ensuring transparency and driving accountability. The Exchange's Annual Performance Report ([Performance Report](#) Section 2.1.5) summarizes credit and debit activity in the Exchange and informs interested parties of recent changes to the Exchange. The Performance Report highlights successes and challenges from the past year, both regionally and for each specific geographic area of interest. This is the highest profile product produced by the Exchange and is targeted to an informed public audience.

COMPILE CONTENT & PUBLISH PERFORMANCE REPORT

The Exchange Administrator uses outputs from the registry (such as the number of credits created during the year) to generate the Performance Report. The Performance Report includes a ledger of all credits and debits generated cumulatively and annually. Credits and debits are summed across service areas. The Exchange Administrator updates the content from the previous year's Performance Report and develops a narrative summary of overall accomplishments and implemented changes to the Exchange over the past year. The Performance Report is annually approved by the Oversight Committee. It is then posted to the Exchange website within an appropriate timeframe and available to all interested stakeholders. If necessary, the Performance Report is also submitted to any relevant regulatory agencies.

Product ■ Annual Exchange Performance Report

OVERSEE EXCHANGE OPERATIONS

Annually, the Oversight Committee conducts or designates an independent entity to conduct a third-party audit of Exchange operations. This audit includes a detailed review of a portion of individual credit and debit project sites. The audit confirms that procedures are being consistently followed, all documentation is present and complete and all Exchange materials and tools are developed and maintained. An Audit Report describes the audit procedures and findings. The Audit Report is made available to the Oversight Committee and discussed at a subsequent Oversight Committee meeting. Additionally, the Audit Report, less information identified as confidential, is posted to the Exchange website.

Product ■ Audit Report

3.3.4 SYNTHESIZE FINDINGS



Figure 3.15: Synthesize Findings

Synthesizing findings into information that is directly related to the operations of the Exchange is helpful in informing management decisions. The Synthesis of Findings Report bridges the gaps between the various stakeholders and involved parties by drawing from experience implementing the Exchange and the results of monitoring and research findings. It is not intended to be a comprehensive review of all literature and available information. Rather, findings are presented in clear statements with targeted supporting information, providing the most relevant information necessary to understand the issues in the context of the Exchange.

COMPILE FINDINGS & DEVELOP SYNTHESIS OF FINDINGS REPORT

The Exchange Administrator requests input from participants and relevant stakeholders, including posting a request for input on the Exchange website. For example, findings may address needs related to improving: 1) the accuracy of credit estimation and verification methods, 2) the effectiveness of different management actions, and 3) the efficiency of Exchange operations. The Exchange Administrator decides how to catalogue and organize received input and develops the Synthesis of Findings Report to present to the Oversight Committee.

Product ■ Synthesis of Findings Report

3.3.5 IDENTIFY & ADOPT EXCHANGE IMPROVEMENT RECOMMENDATIONS



Figure 3.16: Identify & Adopt Exchange Improvement Recommendations

Creating and transparently adopting recommendations to improve the Exchange is an important component of the annual Exchange management process. The predictability and transparency of the management process enables stakeholders to adjust practices and expectations while remaining fully informed.

PROPOSE EXCHANGE IMPROVEMENT RECOMMENDATIONS

The process for maintaining and prioritizing the Exchange Improvements List is described in [Update Exchange Improvements List](#) (Section 3.3.1). The Exchange Improvement List and the Synthesis of Findings Report are critical inputs for the Exchange Administrator to consider when identifying Exchange Improvement Recommendations.

Develop Exchange Improvement Recommendations

The Exchange Administrator reviews the Exchange Improvements List and identifies suggestions to recommend to the Oversight Committee for implementation. The Exchange Administrator describes the following for each recommended improvement:

- Clear statement of need for change and expected improvements resulting from implementing the change.
- Description of what specific Exchange materials will be changed, potentially including red-line versions of recommended revisions.
- Identification of any potential complications or impacts the change may have to the Exchange.
- For changes that require additional resources or greater than one month to implement, a brief implementation plan with associated budget.

Recommendations are grouped by the Categories described in Section 3.3.1. Note, all Category 1 improvements implemented by the Exchange Administrator during the year are documented and may be reviewed by the Oversight Committee.

Product ■ Draft Exchange Improvement Recommendations

Develop Final Recommendations

The Exchange Improvement Recommendations are sent to the Oversight Committee for review in advance of the next Oversight Committee meeting. The Oversight Committee members discuss recommendations of interest or concern with the Exchange Administrator and consult stakeholders as necessary.

Product ■ Final Exchange Improvement Recommendations

ADOPT EXCHANGE IMPROVEMENTS

The Oversight Committee meets, discusses and considers adopting Exchange Improvement Recommendations at least annually. For major changes and those directly related to regulatory or funding requirements, the decision may be to bring a proposal before relevant agency personnel or other decision-making authorities.

The Oversight Committee designates a member to compile a Record of Decisions. A Record of Decisions defines the agreed-to changes, the rationale, the party responsible for implementing changes and the effective date of changes. Changes do not alter the amount of credit available from previously registered projects and should not require changes to existing project Management Plans or credit obligations of Buyers. Any recommendations not adopted are addressed by providing a brief rationale of the Oversight Committee's reasoning.

Product ■ Record of Decisions

RESOLVE OUTSTANDING DISPUTES

As defined in the dispute resolution process defined in briefly outlined [Section 3.1.3](#) and described in greater detail in the Exchange Agreement, the Oversight Committee resolves disputes between Exchange participants that cannot be resolved independently or in consultation with the Exchange Administrator. If the dispute is in reference to regulatory requirements, the regulatory agency has the final decision-making authority.

3.3.6 ENGAGE STAKEHOLDERS



Figure 3.17: Engage Stakeholders

Consistent stakeholder engagement is necessary to ensure the Exchange operates efficiently and increases understanding. Stakeholder engagement occurs throughout the year using the reports and products defined in the previous sections, as well as through email and in-person engagements.

MAINTAIN EXCHANGE WEBSITE

The Exchange Administrator maintains the Exchange website as the central location for all publicly available information not deemed confidential. This includes all tools, guidance and reference materials related to the Exchange. The website also informs interested stakeholders of upcoming events and meetings and provides the opportunity for stakeholders to provide Exchange improvement recommendations (as described in [Update Exchange Improvement Recommendations List](#) Section 3.3.1).

Product ■ Updated Exchange Website

DISTRIBUTE UPDATE EMAILS

The Exchange Administrator maintains an ongoing list of interested stakeholders and their email contact information. The Exchange Administrator disseminates a periodic email update to interested stakeholders to provide information about Exchange progress. Email updates also notify stakeholders when reports are expected to be available for public review, and about upcoming opportunities for in-person engagement.

Product ■ Email Communications

PRESENT AT COMMUNITY FORUMS

The Exchange Administrator and other participants may make presentations at community events and meetings upon request. This step is critical to ensure local groups have a basic understanding of the Exchange, particularly how they may be able to participate.

Product ■ Community Presentations

CONDUCT TRAININGS

The Exchange Administrator periodically conducts trainings to teach potential Exchange participants how to use the Exchange. These trainings are generally open to all interested parties. Verifier certification trainings are conducted as needed with an expectation of at least annually.

Product ■ Hosted Trainings

CONVENE ANNUAL STAKEHOLDER MEETING

The Exchange Administrator annually convenes an open meeting for stakeholders. This meeting is an opportunity to highlight accomplishments and identify areas for improvement with participants and interested stakeholders. The meeting is held after the annual Performance Report is posted to the Exchange website for review, and before final Program Improvement Recommendations are considered by the Oversight Committee (as described in Section 3.3.5).

At this annual meeting, stakeholder input should be structured such that input directly related to identified areas of operational improvement and areas for investigation are recorded in context of the specific need. Stakeholders also should have the opportunity to identify new needs and concerns for consideration. Input may be added to the Exchange Improvements List or List of Research Needs.

Stakeholder input that does not directly relate to these ongoing lists of needs is summarized and the notes posted to the Exchange website.

Product ■ Stakeholder Meeting & Summary of Input Received

SECTION 4 APPENDENCIES

APPENDIX A: GLOSSARY

Adaptive Management: A formal, structured approach to dealing with uncertainty in natural resources management, using the experience of management and the results of research for continuous improvement.

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

Aggregator: A person or institution that works with multiple landowners to implement credit projects, secure financial assurances, and register and sell credits. An aggregator facilitates financial transactions between the Buyers and Credit Developers, and may charge a fee for the service, but is not directly involved in the chain of ownership of credits.

Biological Monitoring: Observing and recording the biological response of the species and the habitat.

Buyer: A person or entity that purchases credits or conservation certificates.

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

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

Compliance Monitoring: Signifies Verification (see definition below).

Conflict of Interest: A situation in which, because of activities or relationships with other persons or organizations, a person or firm is unable or potentially unable to render an impartial verification opinion of Credit Developer's estimated credits.

Conservation Banks: A site or suite of sites established under a Conservation Bank Agreement that provides ecological functions and services expressed as credits that are conserved and managed in perpetuity for specified evaluation species and used to offset impacts occurring elsewhere to the same evaluation species.

Conservation Certificate: A project that records the number of functional acres created, restored or enhanced relative to the applicable baseline in a certificate. Conservation certificates may be purchased by any entity through a donation to the Exchange and is a record of conservation investment.

Conservation Easement: The non-possessory interest of a holder in real property, held by a USFWS-approved governmental or 501(c) organization that imposes limitations or affirmative obligations designed to retain or protect natural, scenic, or open-space values for real property or assure its availability for use as habitat for the species.

Conservation (or "Preservation") management activities: The protection of ecologically important habitat by securing and maintaining existing high-quality habitat, which is preferably habitat that is currently used by the species. An example is placement of land in a conservation easement. In the Exchange Agreement, Conservation Projects refer to any project that generates credits under the Exchange, regardless of starting point habitat quality.

Contract Performance: Minimum standards defining the actions and terms to be implemented or competed to achieve compliance with a Participant Contract.

Covered Habitat: Habitat upon which the Covered Species depends for its continued viability. For the Covered Species in this Agreement, the Covered Habitat is described further in the HQT

Covered Species: Means the Greater Sage-Grouse. [Note: Additional covered species will be added in the future including Mule Deer.]

Deleted: and

Credit: A quantifiable unit of a species' or habitat's conservation value which serves as the currency in the Exchange.

Credit Baseline: The starting point from which credits are calculated. For greater sage grouse, credit baseline is calculated by using regional average site-scale function, multiplied by local and landscape-scale function. In cases where pre-project site-scale function is less than the regional average (e.g. restoration management activity types), actual site-scale conditions are used in place of the regional average.

Credit Developer: Landowners or managers who produce, register, or sell credits in the Exchange.

Credit Project: Projects that generate credits under the Exchange.

Credit Release or Release of Credits: An award of credits made available for transfer by the Exchange Administrator to a Credit Developer upon meeting specified management or performance criteria.

Credit Site Eligibility: A set of minimum requirements that a credit project site must meet in order to be able to participate in the Exchange.

Credit Stacking: Generating multiple mitigation credit types on the same parcel of land.

Credit Variability: Fluctuations in the generation of credits on a project site that are created due to factors outside the control of the Credit Developer, such as environmental conditions and climatic effects.

Debit: A quantifiable unit of loss to conservation value from an impact, that is based on the same methodology and HQTs used to calculate credits.

Debit Baseline: The starting point for measuring debits. For greater sage-grouse, debit baseline is defined as pre-project habitat function and is calculated by multiplying site-scale habitat function by landscape scale and local scale habitat function.

Debit Project: Project that causes a direct or indirect adverse effect to the covered species or covered habitat. The extent of an impact of a debit project is measured in debits.

Durability: Ability for measures beneficial to the species to be effective as least as long as the impacts those measures are designed to offset. Durability is often addressed through legal, financial and management mechanisms.

Dynamic Offset: A series of strategically located, term-based credit agreements that, when sequentially aggregated, meet or exceed the duration of the impact being offset.

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

Enhancement management activities: Improvements to medium or high-quality habitat to heighten, intensify, or improve a specific resource functions.

Exchange Administrator: An organization or entity with the authority to operate and manage the Exchange, including managing the day-to-day operations of the Exchange, and facilitating and overseeing all credit generation and transaction activities.

Exchange Agreement: The signed agreement with USFWS authorizing the use of Exchange credits for mitigation purposes.

Exchange Area: the portion of Colorado that contains species habitat covered by the Exchange. The Exchange Area is composed of service areas (definition below).

Exchange Management System: A formal, structured program-wide adaptive management approach to dealing with uncertainty in natural resources management, using the experience of management and the results of research as an ongoing feedback loop for continuous improvement.

Exchange Operations: A set of rules that defines the universal processes through which credits and debits are generated, tracked, and traded within the Exchange.

Financial Assurances: Fiscal mechanisms that are used to ensure the durability of credits generated throughout the duration of a credit project. Financial assurances are defined in each Participant Contract with Credit Developers and consist of 1) contract terms, such as financial penalties for intentional reversals and specific payment terms, and 2) financial instruments.

Financial Instruments: Ensure funds are available for the implementation and long-term management of each credit project or to purchase credits if term-debit projects exceed the duration of associated credit projects. Financial instruments include long-term stewardship funds and contract surety bonds.

Force majeure: War, insurrection, riot or other civil disorder, flood, earthquake, fire, disease, severe drought, governmental restriction or the failure by any governmental agency to issue any requisite permit or authority, or any injunction or other enforceable order of any court of competent jurisdiction, which has a material and detrimental impact on the Participating Property and over which the Participant has no control; provided, however, that (i) a flood shall be considered an event of Force Majeure only if it is greater than a presently projected 100-year flood, where “flood” refers to a runoff event; (ii) an earthquake shall constitute an event of Force Majeure only if the ground motion it generates at the Participating Property is greater than that presently projected from an earthquake with a return period of 475 years; and (iv) governmental restriction or the failure by any governmental agency to issue any requisite permit or authority, or any injunction or other enforceable order of any court of competent jurisdiction shall not constitute an event of Force Majeure unless there is no other feasible means of Remedial Action.

Function: Refers to the role of the habitat in providing for life history requirements for greater sage-grouse, which can be defined for a variety of spatial scales, from the site to the landscape scale.

Functional Acres: Defined units which combine habitat quality (*function*) relative to optimal conditions and quantity (acres).

Fund Manager: A third-party person or entity selected by the Exchange Administrator and approved by the Oversight Committee to manage a Long-term Stewardship Fund.

General Habitat Management Areas (GHMA): Habitat that is defined by BLM as greater sage-grouse occupied range outside of PHMA. [This will be revised once BLM planning docs are finalized.]

Habitat Conservation Plan: Document that defines the process and requirements for Buyers to calculate debits and meet incidental take permit requirements in situations where the species is listed as threatened or endangered by the USFWS.

Habitat Performance: The conservation, restoration, and enhancement of Covered Habitat as indicated by the quantification of the actual conditions of a Participating Property as measured by the Habitat Quantification Tool.

Habitat Quantification Tool (HQT): A set of science-based metrics and calculations used to quantify the quality of existing habitat conditions for a species, and quantify changes to these conditions either due to impact to the species habitat or conservation actions. Currently the Exchange has quantification tools for greater sage-grouse habitat.

Deleted: and mule deer

Landscape scale (2nd order): The scale equivalent to those habitats required by species subpopulations. See Habitat Quantification Tool Methods Document for more information.

Local scale (3rd order): The scale equivalent to those habitats required by individual species throughout the year. See Habitat Quantification Tool Methods Document for more information.

Long-term stewardship deposit: Deposit made or required to be made by the Participant or Buyer as appropriate to fully fund the costs associated with the perpetual management and maintenance of participating properties; administrative costs related to procuring and administering additional contracts for dynamic offsets, and the costs of other activities required by the applicable Participant Contract. Long-term stewardship deposits collectively constitute the Long-term Stewardship Fund Principal of the Long-term Stewardship Fund.

Long-term stewardship fund: Sum of money, held by the Exchange Administrator or Fund Manager, to provide income to fund the management and maintenance, or other activities on participating properties consistent with each property's Participant Contract. The term "long-term stewardship fund" refers to the long-term stewardship deposit and all interest, dividends, other earnings, additions, and appreciation.

Long-term stewardship fund principal: Portion of the long-term stewardship fund that is maintained and managed to generate earnings and appreciation in value for use in funding management and maintenance of Participating properties; administrative costs related to procuring and administering additional contracts for dynamic offsets, and other activities required by Management Plans. The principal consists of the sum of all deposits, and any additions made to the principal that are made from earnings, appreciation in value or subsequent deposits for the purpose of compensating for inflation and ensuring that the real value of the principal does not decline over time.

Management Plan: Document developed for each participating property that governs habitat enhancement, restoration, or conservation management activities required to be conducted and habitat conditions to be maintained in order to generate credits.

Map unit: Individual parcels of land that are evaluated either in the field or through a GIS exercise, and are representative of the range of variability in habitat quality. The HQT defines a map unit as a predefined delineation of relatively homogenous area of habitat conditions within the site or project area.

Mitigation Ratios: Multiplier used in combination with the number of debits, as determined by the HQT, to calculate the total credit obligation of the Buyer needed to meet regulatory obligations.

Monitoring: The process to observe and record current environmental conditions and changes in environmental conditions over space and time.

Net Benefit, or Net Conservation Benefit: The exchange maintains net benefit by ensuring the amount of functional acres conserved exceeds the amount of functional acres impacted, measured at a programmatic level.

Obligated credits: Credits that are transferred and used for mitigation and no longer available to be transferred to another Buyer. Obligated credits will not be available for resale or to satisfy other needs and will be tracked in the registry.

Offset: An offset is an action to address an adverse environmental impact of resource use, a discharge, emission or other activity at another location to deliver net environmental benefit (from Australian EPA discussion paper Publication 1202.3, June 2008).

Online Tracking Platform: A platform that automates much of the workflow of participating in the Exchange, enables participants to have easy access to guidance documents and forms, and acts as a centralized place to store documents related to credit generation.

Oversight Committee: Formal, representative stakeholder group, which is responsible for overseeing the operations of the Exchange and making Exchange management decisions.

Participant: General term for all entities participating in the Exchange, with the exception of the Exchange Administrator and the Oversight Committee. Participants include: Credit Developers, Buyers, technical support providers, aggregators, and Verifiers. In the Exchange Agreement, the term Participant refers to a person with a fee simple, leasehold, or other property interest (including owners of water or other natural resources), or any other entity that may have a property interest, sufficient to carry out the proposed management activities, subject to applicable State law, who produces, registers, or sells Credits in the Exchange.

Participant Confidentiality: Processes to ensure sufficient information is available to monitor compliance, ensure progress toward environmental goals, and inform a robust Exchange management process, while not revealing identifying information of participants.

Participant Contract: Agreement between the Exchange Administrator and Participants by which a Participant agrees to bind Participating Property to a Management Plan and other relevant terms and conditions for the creation of credits. A template Participant Contract is attached to Exchange Agreement as an appendix.

Participating Property: Tract of land that is enrolled in the Exchange

Performance Standard: Observable or measurable administrative or ecological (physical, chemical, or biological) attributes that are used to determine if a credit project meets the agreed upon objectives.

Permanent: Projects that are in perpetuity or duration of 100 years or more.

Prelisting Mitigation: Conservation measures benefitting a non-federally listed species that are recognized in a FWS prelisting mitigation agreement and undertaken prior to the determination that the species to be benefited is a federal endangered or threatened species.

Pre-project function or condition: Conditions present at a project site prior to implementation of a credit or debit project.

Post-project function or condition: Conditions present at a project site after implementation of a credit or debit project.

Priority Habitat Management Areas (PHMA): Areas that have been identified by BLM as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas would include breeding, late brood-rearing, and winter concentration areas. This data is a combination of mapped grouse occupied range, production areas, and modeled habitat (summer, winter, and breeding). PPH incorporates areas of high probability of use (summer or winter, or breeding models) within a 4 mile buffer around leks that have been active within the last 10 years. [This will be revised once BLM planning docs are finalized.]

Deleted: Preliminary General Habitat (PGH): Habitat that is defined by BLM as greater sage-grouse occupied range outside of PPH¶
Preliminary Priority Habitat (PPH): Areas that have been identified by BLM as having the highest conservation value to maintaining sustainable greater sage-grouse populations. These areas would include breeding, late brood-rearing, and winter concentration areas. This data is a combination of mapped grouse occupied range, production areas, and modeled habitat (summer, winter, and breeding). PPH incorporates areas of high probability of use (summer or winter, or breeding models) within a 4 mile buffer around leks that have been active within the last 10 years.¶

Project Duration: The amount of time that the Exchange recognizes a project before requiring that the project be renewed. For credit projects, it is the length of time a Credit Developer has committed to

creating and maintaining the habitat function stated in the Participant Contract and Management Plan. For debit projects, project duration is the length of time that the project is anticipated to impact habitat function at the site, and an additional set period of time to return the site to baseline condition.

Registry: A managed database that is run by the Exchange Administrator of listed projects, their associated benefits, and supporting documentation. The registry helps the Exchange Administrator account for the flow of credits and debits over time.

Regulatory Assurances: Mechanisms created to ensure that efforts taken to preserve a candidate species will be recognized in the event that the species is later designated as threatened or endangered.

Remedial Action Plan: Document outlining corrective measures which the Exchange Administrator or a Credit Developer is required to take to ameliorate any injury or adverse impact to a participating credit site as a result of a failure to achieve the contract performance or habitat performance outlined the site's Management Plan.

Reserve Account: An account of credits, funded by a percentage of the credits transferred in each transaction that is held by the Exchange Administrator for the benefit for the benefit of the Covered Species or Covered Habitat, which may not be used for mitigation except in situations authorized by the Exchange Administrator and Exchange Agreement.

Restoration management activities: The reestablishment of ecologically important habitat or other ecosystem resource characteristics and function(s) at a site where they have ceased to exist, or where they exist in a substantially degraded state, and that renders a positive biological response by the species or habitat.

Reversal or Credit Invalidation: Credits that do not persist for the full project duration due to unplanned circumstances, whether through natural or man-made intentional or unintentional causes.

Science Advisory Committee: Group of science and technical experts who provide scientific input and guide monitoring and research.

Service Area: Defined portion of the Exchange Area within which credits may be used to offset debit projects.

Site scale (4th order): The scale equivalent to the area where vegetation attributes are relevant to greater sage-grouse. See Habitat Quantification Tool Methods Document for more information.

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

Static Offsets: Mitigation achieved by the use of credits produced in perpetuity on a participating credit site that is fixed in a single geographic location with the Participant Agreement, Management Plan and associated site protection mechanisms in place for the contracted duration of the debit project.

Technical Support Provider: Entities with technical expertise in conservation planning and project design, who understand how to use the Exchange tools and forms. May be hired by Credit Developers to help design conservation projects, use the HQTs to estimate credits, and submit all required materials to the Exchange Administrator. There is no formal process to designate or certify a technical support provider as qualified.

Term Credits: Mitigation achieved by the use of credits produced through a limited term agreement on a Participating Property.

Transaction Fee: Fee imposed on each Transfer of Credits that supports the operating expenses of the Exchange.

Transfer: The sale and conveyance of credits from a Credit Developer to a Buyer.

Verification: Also called “Compliance Monitoring” in the Exchange Agreement, verification is an independent, expert check on the HQT calculations where the quantity and quality of credit or debit-generating activities is observed and recorded, along with other specifications of the Exchange.

Verifier: A person that conducts site visits to assess the accuracy of credit and debit calculations. Verifiers must be trained and certified by the Exchange Administrator and must meet qualifications established by the Oversight Committee.

APPENDIX B: FORMS, TEMPLATES & TOOLS

The following forms, templates, and tools are referenced in the Exchange Manual to support ongoing operations of the Colorado Habitat Exchange (Exchange). Once initiated and in place, the Exchange Administrator will develop a series of forms as needed from the list outlined in the table below, in order to ensure streamlined and efficient operations.

- **Form:** A document with pre-defined fields that participants fill out and submit to the Exchange Administrator. For example, the Validation Checklist provides a set of fields that Credit Developers fill out to provide basic information to the Exchange Administrator about a proposed credit project.
- **Template:** A document with defined content outline and formats that an Exchange participant uses to efficiently populate with unique information. For example, the Exchange Administrator uses the previous year's Annual Performance Report to update information and create the next year's Annual Performance Report.
- **Tool:** A document, spreadsheet, or website used by Credit Developers, Buyers or the Exchange Administrator to carry out a particular operational step in the Exchange Manual. For example, the Habitat Quantification Tool (HQT) is used to determine credit and debit from project sites. Tools are created and maintained by the Exchange Administrator.

The Tools, Forms & Templates Table uses the following fields to define each product.

- **Name:** Name of the document for participant use in the Exchange.
- **Type:** Specifies whether the document is a tool, form or product as described above.
- **Description:** A brief description of the purpose of each document.
- **Responsible Party:** Specifies which party is responsible for managing a tool, filling out a form, or creating a product.

#	NAME & VERSION	TYPE	DESCRIPTION	RESPONSIBLE PARTY
1	VALIDATION CHECKLIST	Form	Basic information to provide an initial screen of a credit project's eligibility to participate in the Exchange.	Credit Developer
2	CREDIT DEVELOPERS & BUYERS LIST	Template	List of projects seeking funding and Buyers interested in purchasing Credits.	Exchange Administrator
3	HABITAT QUANTIFICATION TOOL (HQT)	Tool	A set of metrics (i.e. measurements and methods), applied at multiple spatial scales, to evaluate vegetation, anthropogenic, and environmental conditions related to habitat quality and quantity.	Exchange Administrator

#	NAME & VERSION	TYPE	DESCRIPTION	RESPONSIBLE PARTY
4	MANAGEMENT PLAN	Template	<p>Template that guides a Credit Developer to define specific restoration and management actions over the life of a credit project, including ongoing maintenance and monitoring requirements.</p> <ul style="list-style-type: none"> Existing Project Site Information, such as a site map and information on current management practices. Management Plan Information, including proposed management or restoration practices, anticipated start and end dates, and any management limitations. 	Credit Developer
5	VERIFICATION CONTRACT	Form	A Credit Developer or Buyer signs a contract with the Exchange Administrator for third party verification based on a template.	Credit Developer, Buyer
6	CONFLICT OF INTEREST FORM	Form	Submitted by a verifier to the Exchange Administrator about any pre-existing conflicts of interest for verification.	Verifier
7	VERIFICATION REPORT	Template	Report submitted by a verifier after site verification attesting to his or her opinion on whether a Credit Developer's Credit Estimate Report matches on-the-ground conditions.	Verifier
8	SELF-MONITORING REPORT	Template	Report submitted by Credit Developers in non-verification years that specifications of the Management Plan have been fulfilled.	Credit Developer
9	VERIFICATION PROTOCOL	Tool	A description of the verification process for verifiers to use as guidance.	Exchange Administrator
10	PARTICIPANT CONTRACT	Template	Template to be filled out between the Credit Developer and the Exchange Administrator laying out the terms of participation in the Exchange.	Credit Developer, Exchange Administrator
11	NOTICE OF TRANSFER	Form	Notice from the Credit Developer or Buyer to direct the Exchange Administrator to transfer credits between accounts.	Credit Developer, Buyer
12	ACCOMPLISHMENT REPORTS	Template	Reports provided by the Exchange Administrator to Credit Developers and Buyers outlining project accomplishments.	Exchange Administrator
13	EXCHANGE IMPROVEMENTS LIST	Template	Suggestions for improving the Exchange collected throughout the year and maintained by the Exchange Administrator.	Exchange Administrator
14	LIST OF RESEARCH NEEDS	Template	Catalogs and prioritizes research and monitoring needs identified by participants.	Exchange Administrator
15	ANNUAL EXCHANGE PERFORMANCE REPORT	Template	The Exchange Administrator uses registry outputs to generate quantitative information to show Exchange accomplishments with respect to overall goals.	Exchange Administrator

#	NAME & VERSION	TYPE	DESCRIPTION	RESPONSIBLE PARTY
16	SYNTHESIS OF FINDINGS REPORT	Template	Synthesizes learning from experience implementing the Exchange and from new monitoring and research findings	Exchange Administrator
17	EXCHANGE IMPROVEMENT RECOMMENDATIONS MEMO	Template	Recommendations of priority Exchange improvements for approval by the Oversight Committee	Exchange Administrator
18	RECORD OF DECISIONS	Template	Defines the agreed-to changes, rationale, the party responsible for implementing changes, and the date changes go into effect.	Exchange Administrator
19	AUDIT REPORT	Template	Independent audit of the Exchange operations by the Oversight Committee or third party.	Oversight Committee

APPENDIX C: GUIDING PRINCIPLES OF THE COLORADO HABITAT EXCHANGE

The Colorado Habitat Exchange (Exchange) Working Group developed the following principles as part of the Exchange's Vision Document in 2012. A condensed version of the Exchange's guiding principles is presented in Section 1.1 of this Exchange Manual.

- Market-based to maximize the amount and value of conservation achieved per dollar invested;
- Science-based, employing the best available science, including expert opinion, to determine the most appropriate conservation actions and quantification methods;
- Applicable across broad geographies and natural resource types;
- Achieves measureable net conservation benefits;
- Improves certainty and efficiency for energy and other project developers;
- Transparent and fair to all stakeholders;
- Focused on meeting priority habitat and species conservation goals of the State;
- Complimentary to other conservation approaches;
- Meets the standards and approval of key regulating entities, if and when regulatory approval is necessary (i.e. US Fish and Wildlife Service for species listed under the Endangered Species Act);
- Tailored to local community conditions;
- Flexible and adaptable to specific local community and environmental conditions;
- Appeals to a broad spectrum of conservation credit sellers - private landowners, state land leases, and federal land permittees - because it is straightforward, easy to understand and provides a powerful financial incentive; and
- Appeals to a broad range of regulated and unregulated buyers of environmental services, including federal, state, and private entities.

APPENDIX D: RISK OF MINERAL AND SPLIT ESTATE DEVELOPMENT

Information provided by Working Group members in February through September 2014 provided a range of estimates for the risk of mineral development and split estate development varying considerably across the type of mineral and surface ownership. This information was used to derive the split estate contribution value for the Exchange's reserve account (see [Reserve Account](#) Section 2.5.4).

Risk of Mineral Development

- According to Colorado Parks and Wildlife greater sage-grouse data, BLM federal mineral ownership, and CoMAP landownership, 57% of greater sage-grouse occupied habitat has federal minerals. In addition, 30% of occupied greater sage-grouse habitat in Colorado has federal minerals that are already leased for development. Nationally, there is a 44% chance that lands leased for federal minerals development are actually developed. Using these two assumptions, the probability of federal minerals becoming leased and then developed in occupied habitat is 13.2% ($30\% * 44\%$).²²
- According to estimates based on professional judgment at the Colorado State Land Board for state lands, there is a 5% chance that state lands are leased for mineral development and a 10% chance that leased lands are then actually developed for minerals. Using these two assumptions, the probability of state lands becoming leased and then developed for minerals is 0.5% ($5\% * 10\%$).

Risk of Split Estate Development

- According to CPW analysis of CoMAP land ownership and BLM federal mineral ownership, approximately 15% of occupied range in Colorado is classified as split estate ownership. Assuming national figures estimating that 44% of federal minerals are then developed, the risk of split estate development is 6.6% ($\sim 15\% * 44\%$).
- An estimate of the risk of split estate development on private lands was not available; however, Working Group members note that the specific percentage of private surface ownership and split mineral ownership is likely greater than the split federal minerals.
- Given the variability in the current estimates provided, and the existing gaps in data and analysis of the risk of split estate development among the different types of lands and mineral ownership, the Exchange estimates a 7% risk of split estate development overall.

²² http://www.blm.gov/wo/st/en/prog/energy/oil_and_gas/statistics.html

APPENDIX E: DYNAMIC OFFSETS

The concept of dynamic offsets deserves careful consideration for inclusion in the Colorado Habitat Exchange (Exchange). The purpose of this appendix is to: 1) clarify the concept of dynamic offsets, 2) highlight some of the potential ecological considerations related to this concept, and 3) initiate a conversation with the Working group, Science Team, and USFWS to consider the issue so that Exchange Manual language can be finalized and approved.

Dynamic offsets are defined as a series of strategically located, term-based agreements that, when sequentially combined, meet or exceed the time frame and size of the impact.²³ For example, one 40-year impact could be offset with a series of four, sequential 10-year term agreements. The core principle behind dynamic offsets is that the offsets would potentially shift in location across the landscape as necessary to maintain the conservation value of the offset over the time frame of the impact, rather than being stationary.

Dynamic offsets are made possible by the programmatic nature of the Exchange through which the Exchange Administrator can track and manage the program to maintain a net positive balance of offsets to impacts at any given point in time. As described in the Exchange Manual, dynamic offsets would require the same financial assurances as other types of offsets plus additional financial assurances needed to acquire and develop new term contracts as other term contracts in the series expire.

ECOLOGICAL CONSIDERATIONS

Permanent protection in fixed locations has long been viewed as the only legitimate way to provide long-term habitat conservation.²⁴ However, restricting species protection to static locations in a changing and dynamic ecosystem may not be the best strategy to achieve landscape-scale conservation benefits. This perspective is especially true for species that are responsive and adapt to dynamic environmental conditions or inhabit changing environments or which depend upon climax habitats that are vulnerable to wildfire, disease, or pest outbreaks.²⁵ Sole reliance on static protections could potentially result in a net loss of habitat if protected areas no longer provide the intended benefits as a result of ecological changes (e.g., habitat succession, climate change, wildfire, drought, geomorphological changes that render substrate unsuitable for breeding, population dynamics or land/water use and development patterns beyond a landowner's control render a site partially or wholly unsuitable as habitat). Dynamic offsets could provide a means to better accommodate natural shifts in habitat value across the landscape at any given time, increase connectivity in a fragmented landscape, and provide insurance against getting locked in to static agreements that no longer benefit the species.

The concept of dynamic habitat offsets is explained by Bull et al. (2013) as a method to deliver conservation for "moving targets," such as migratory species or landscapes subject to regular

²³ An important and related consideration is the term of impacts. The Exchange requires that mitigation must be durable and in place for a period of time equal to the life of the debit project. The term for which a buyer is required to mitigate a debit from a debit project includes the length of the impact plus additional time to remediate the project. While important, further considerations for the term of impacts are not addressed in this appendix.

²⁴ Rayfield, B. P. M. A. James, A. Fall, and M. J. Fortin. 2008. Comparing static versus dynamic protected areas in the Quebec boreal forest. *Biological Conservation* 141: 438-449.

²⁵ Nicholson, E., G. M. Mace, P. R. Armsworth, G. Atkinson, S. Buckles, T. Clements, R. M. Ewers, J. E. Fa, T. A. Gardner, J. Gibbons, R. Grenyer, R. Metcalf, S. Mourato, M. M. Is, D. Osborn, D. C. Reuman, C. Watson, and E. J. Milner-Gulland. 2009. Priority areas for ecosystem services in changing world. *Journal of Applied Ecology* 46: 1139-1144.

environmental fluctuations.²⁶ It could also be applied in the case of species that face major habitat shifts as a result of climate change.²⁷ Dynamic offsets create mobile protected areas that at any given point in time guarantee habitat availability across large, dynamic landscapes.

Dynamic offsets might be more appropriate for some ecological circumstances. These include systems that are intrinsically dynamic (e.g., large river floodplains), landscapes undergoing widespread environmental change (e.g., climate change or large-scale development), and climax ecosystems prone to large-scale stochastic events in which target species would be displaced (e.g., wildfire, pests or disease outbreaks). Further, offsets that shift in location over time could be appropriate for species that are highly mobile and adapted to seeking out resources in dynamic systems. In addition, dynamic offsets could potentially serve as another means decreasing fragmentation, facilitating species movements and reconnecting isolated habitat fragments and populations across landscapes.

Recent studies show observed or expected species ranges shifts in response to climate change, sometimes in directions that weren't always predicted.²⁸ As a result, it cannot be assumed that a favorable location at the time of signing a conservation agreement will remain favorable several decades later. This may be especially true on the edges of species ranges or in highly fragmented landscapes. Dynamic offsets might be a method for building flexibility into landscape scale conservation, allowing for greater resilience over the long term by intentionally shifting conservation locations as environmental conditions change.

There are some circumstances under which dynamic offsets may not be appropriate; for example, for highly specialized species with very restricted ranges or sedentary species with limited mobility or dispersal abilities. BenDor and Woodruff (2014) argue that conservation plans using dynamic offsets should carefully consider life histories of target species, behavioral strategies and restoration lag times²⁹. The authors state that dynamic offsets could also be detrimental in systems where restoration response time is slow. For example, highly degraded sage brush ecosystems might respond slowly to restoration efforts. Short-term agreements might not be of sufficient length to rehabilitate the habitat to a usable level. Under these circumstances, the time frame of the offset might not match the time frame of usability for the species. If greater sage-grouse are attracted to the site and the agreement ends, then those habitat benefits and financial investments might be lost should a landowner choose not to re-enroll and discontinues ecological management or converts the site to another land use.

Another key question is whether dynamic offsets are appropriate for animals that exhibit high site fidelity like the greater sage-grouse. If a greater sage-grouse is attracted to the improvements of a temporary offset during the agreement, the greater sage-grouse may lose this habitat once the agreement ends and the surrounding landscape doesn't provide adequate supporting habitat. Under these circumstances, the temporary offsets will have created habitat sinks for the species. On the other hand, a

²⁶ Bull, J.W., Kenwyn B. Suttle, Navinder J. Singh, and E.J. Milner-Gulland. "Conservation when nothing stands still: moving targets and biodiversity offsets," *Frontiers in Ecology and the Environment* 11 (May 2013): 203-210.

²⁷ Poiani, K., R. L. Goldman, J. Hobson, J. M. Hoekstra, and K. S. Nelson. 2011. Redesigning biodiversity conservation projects for climate change: Examples from the field. *Biodiversity Conservation* 20:185-201.

²⁸ Settele, J., R. Scholes, R. Betts, S. Bunn, P. Leadley, D. Nepstad, J.T. Overpeck, and M.A. Taboada, 2014: Terrestrial and inland water systems. In: *Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change* [Field, C.B., V.R. Barros, D.J. Dokken, K.J. Mach, M.D. Mastrandrea, T.E. Bilir, M. Chatterjee, K.L. Ebi, Y.O. Estrada, R.C. Genova, B. Girma, E.S. Kissel, A.N. Levy, S. MacCracken, P.R. Mastrandrea, and L.L. White (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, pp. 271-359.

²⁹ BenDor, T. K., and S. Woodruff. 2014. Moving Targets and Biodiversity Offsets for Endangered Species Habitat: Is Lesser Prairie Chicken Habitat a Stock or a Flow? *Sustainability* 6:1250-1259.

habitat parcel that provided connectivity for a decade or more that might not have otherwise existed, could still have yielded enduring demographic and population genetics benefits.

ECONOMIC, LEGAL AND POLICY CONSIDERATIONS

There are also economic, legal and policy reasons that dynamic offsets could yield long-term conservation benefits. One issue to consider is how existing water, property and mineral laws might undermine the conservation benefits of permanent static conservation agreements. Dynamic offsets provide the flexibility to address some of these negative effects. If conservation agreements are limited to properties where the surface, mineral and water rights are owned by the same entity, this could disqualify large areas of the western United States. Take for example the Powder River Basin of Wyoming, which supports an important regional population of greater sage-grouse but ownership is split between mainly privately-owned surface (85%) and federally-owned minerals (75%).³⁰ Dynamic offsets allow for the inclusion of lands where permanent agreements are not possible, but where benefit may be gained by durable agreements. If the site is disturbed or fragmented beyond the ability of the habitat to recover, shifting dynamic offsets allow that the conservation benefits may be shifted to more beneficial locations throughout time.

Since term agreements are typically more appealing to private landowners than permanent easements, the availability of an option to enroll in something other than a permanent easement is likely to encourage more landowners to participate. An increased number of participants could accelerate conservation efforts across much larger areas than are currently being managed for habitat and improve landscape conditions in ways that are more ecologically beneficial. Allowing for a suite of shorter-term conservation agreement options provides landowners with the flexibility to weigh the cost-benefit of maintaining habitat value without compromising their long-term ability to respond to changing agricultural markets. It may also appeal to landowners that do not want to dictate land management conditions for future generations.

Furthermore, offering enrollment in term agreements offers the opportunity for the biological re-evaluation of the property when agreements expire. Having a series of shorter term agreements will allow the Exchange flexibility to evaluate and re-focus conservation action as needed across the landscape to maximize conservation value, rather than being locked into entirely static agreements in fixed locations.

APPLICATION OF DYNAMIC OFFSETS IN THE COLORADO HABITAT EXCHANGE

The Exchange is designed to achieve a net benefit for the species. Dynamic offsets offer a flexible means of providing enduring conservation benefit across large landscapes and more opportunity for private landowners to participate in habitat conservation. There is a strong ecological as well as economic, legal and policy case to be made for further exploring, researching and pilot-testing the dynamic offsets in sagebrush ecosystems. The key question is how to address the considerations raised in this appendix in order to ensure that dynamic offsets offer more potential benefit than detriment given the life history traits of the greater sage-grouse.

³⁰ Naugle, David E., Kevin E. Doherty, Brett L. Walker, Matthew J. Holloran, and Holly E. Copeland. "Energy development and greater sage-grouse." *Studies in Avian Biology* 38 (2011): 489-504.

APPENDIX F: MONITORING AND ADAPTIVE MANAGEMENT - PHASE 1 & PHASE 2

This appendix describes the monitoring and adaptive management plans for the Exchange. Phase 1 issues will be tracked in the first year and will be incorporated into the Phase 2 Monitoring and Adaptive Management Plan (see below).

By the end of Phase 1, December 2016, a full Monitoring and Adaptive Management Plan will be developed and approved by the Oversight Committee (see guidelines for this plan in Phase 2 below). This plan will be adopted by the Exchange and implemented in Phase 2 from January 2017 forward. A third party performance review after 5 years or 20 transactions, whichever comes first, is recommended as part of Phase 2 Monitoring and Adaptive Management (see guidelines for Third Party Performance Review below).

PHASE 1 MONITORING AND ADAPTIVE MANAGEMENT

Phase 1 Monitoring and Adaptive Management includes a set of specific monitoring items. Those items are:

- Reserve Account
- Functional Acre Balance
- Credit Project Type
- Credit Project Incentives
- Service Areas

For each item, a goal, monitoring, threshold and action statement are identified. The goal is a statement of what is being monitored. The monitoring statement provides a description of who, when and what will be monitored. The Threshold describes the trigger for action to be taken on an issue, and the action describes potential adjustment to the program to be undertaken if the threshold is reached.

Reserve Account

Goal

The Reserve Account will maintain a sufficient balance to cover reversals, but not more than necessary.

In the first year of the program, there is some risk that the reserve account will be too low, but little risk of it being too high, because it is unlikely that a high number of credits will be registered in year 1. As new credit projects are registered the reserve account will increase and become large enough to address loss of credits due to reversals. If, over time, there has been little to no use of credits from the reserve account, then the account is likely to accrue more credits than are necessary (i.e., become too high based on acceptable level of risk). Because this document is focused only on year 1 of the program, the adaptive management threshold only applies to the risk of the reserve account being too low.

Monitoring

The Exchange Administrator will contact to the Oversight Committee within one week if a reversal occurs and the reserve account is needed. The Exchange Administrator will provide the following information:

- The amount of reserve account credits needed to address the reversal;
- The current and remaining credit balance after the account is utilized; and
- An estimate of how long it will take to replace the credits given the current reserve account percentage.

Thresholds

The reserve account is too low if:

- There are insufficient credits to cover a reversal, or
- The reserve account balance is zero or close to zero.

Action

The Exchange Administrator can propose adjusting the reserve account contribution upward if necessary. This proposal must be approved by the Oversight Committee. The adjusted contribution would become effective immediately for all new credit projects upon approval by the Oversight Committee.

Functional Acre Balance

Goal

Functional acres impacted will not exceed functional acres offset by more than 10% for any seasonal habitat type within a Service Area.

Monitoring

The Exchange Administrator will track and report annually to the Oversight Committee the number of functional acres impacted by seasonal habitat compared to the number of functional acres offset by seasonal habitat by Service Area.

Colorado Parks and Wildlife (a member of the Oversight Committee) will:

- Annually, or more frequently, and by Greater Sage-Grouse Management Zone (smaller than a Service Area) - track and report the number of functional acres impacted by season compared to the number of functional acres offset by season to the Oversight Committee.
- If the functional acres of impact exceed the functional acres of offset for any seasonal habitat by 10% or more within a Greater Sage-Grouse Management Zone, consultation between the Oversight Committee and CPW will be triggered. CPW may recommend programmatic changes to address the imbalance.

Thresholds

If the functional acres of impact exceed the functional acres of offset for any seasonal habitat within any Service Area by 10% or more, consultation between the Oversight Committee and CPW will be triggered. CPW will assess whether corrective action is required.

Action

If corrective action is warranted by the Oversight Committee in consultation with CPW, then the following options are available for the Exchange Administrator.

- Restrict the seasonal habitat offsets to specific seasonal habits needed to correct the balance; or
- Offer additional incentives to increase the type of seasonal habitat desired.

These options must be approved by the Oversight Committee.

Credit Project Type

Goal

Credit project types (e.g. Conservation, Enhancement, Restoration) are created and purchased within the Exchange in a manner that achieves the highest net benefit possible for the species. Particular regions within the range of the species might have different habitat needs than others, but little information is available to guide the Exchange toward particular project types by region at this time. The Oversight Committee, Science Team, and CPW will provide new information on the most beneficial project type by location to the Exchange Administrator if it becomes available.

Monitoring

The Exchange Administrator will assess project type by Service Area on a semi-annual basis in the first year of the program.

Thresholds

If any more than 75% of projects are of any one project type (e.g. restoration, enhancement, protection) then consultation with the Oversight Committee is triggered. The Oversight Committee in coordination with CPW will assess whether action is needed.

Actions

If actions are needed to encourage other types of projects in a particular area, the Exchange Administrator may offer additional incentives or other methods to encourage the project type needed or restrict unneeded types. These options must be approved by the Oversight Committee.

Credit Project Incentives

Goal

Credit projects that provide the greatest conservation benefit to the Greater Sage-Grouse are incentivized within the Exchange. The Exchange does not currently provide additional incentives for specific credit project characteristics, such as credit project types, locations, terms, or sizes. Such incentives would be in addition to incentives that are currently built into the program through the HQT and Exchange rules.

Monitoring

In the first year of the program, the Exchange Administrator will consult with the Science Team and Oversight Committee to determine whether there is a need to develop incentives to reward specific credit projects by applying multipliers to credit project scores.

The following credit project characteristics will be explored:

- Credit projects that are longer in term;
- Credit projects that address limiting or especially desirable seasonal habitat types;
- Credit projects that contribute to habitat connectivity;
- Credit projects located in core habitat;
- Credit projects that benefit especially important leks.

Threshold

If the Oversight Committee in consultation with the Science Team determines that additional incentives are warranted.

Action

The Oversight Committee and Exchange Administrator will develop specific multipliers (or other means) to apply to the credit scores that achieve targeted conservation benefits for the Sage Grouse.

Service Areas

Goal

Credits are purchased to offset debit projects within a proximity to benefit the impacted Sage Grouse sub-population. The Exchange currently requires credits be purchased in the same Service Area in which the debit occurred. For the Exchange market to function properly there must be credits available in any Service Area where impacts occur. If credits are not available in any given Service Area, there may be a need to purchase credits from a different Service Area (i.e. a need for “cross-service area” transaction).

Monitoring

The Exchange Administrator will closely monitor the need for cross-service area transactions through communication with current and potential credit producers and buyers.

Threshold

Exchange Administrator is unable to secure sufficient credits within the same service area in a timely or economically viable manner.

Action

If a need for cross-service area transactions arises, the Exchange Administrator will notify the Oversight Committee. The Oversight Committee will address the need for cross-service area transactions on an as needed basis. If needed, the Oversight Committee may decide to allow cross-service area transactions with a penalty (i.e. it may develop and apply a mitigation ratio requiring the buyer to purchase more credits).

PHASE 2 MONITORING AND ADAPTIVE MANAGEMENT

This section provides guidelines for development of a Monitoring and Adaptive Management Plan (Plan) for the Colorado Habitat Exchange. The Oversight Committee will use this appendix and the U. S. Department of Interior Technical Guide³¹ as guidelines for completing the Exchange Monitoring and Adaptive Management Plan.

Adaptive management is defined as the structured dynamic process of addressing uncertainty in management through the incorporation of procedures that seek to periodically revise and update tools, strategies and approaches to management in response to changing conditions or new information.

Adaptive management strategies allow for changes to the overall conservation strategy to occur in response to changing conditions or new information, including those identified during monitoring.

Adaptive approaches to management recognize uncertainty in answers to management questions and this process emphasizes learning while doing. Adaptive management also includes, by definition, a commitment to change management approaches when appropriate for attaining biological goals and objectives of a conservation strategy. The goal of adaptive management for the Exchange is to make periodic changes that keep it up to date with the current state of knowledge and objectives of the program. Monitoring is the act of collecting the data that will be used for the adaptive management of the program.

Deleted: that not all of the

Deleted: are known and some management is a process of trial and error

A monitoring and adaptive management strategy should be designed to answer the following basic questions:

- What criteria, metrics, and data will be used to monitor and evaluate the Exchange over time?
- How will this information contribute to adaptive management of the program? Who should be responsible for analyzing the data and ensuring it is incorporated into adaptive management?
- What methods will be used to collect the necessary data, how often will it be collected, and how much will this cost?
- How can these data be understood within the broader context of Greater Sage Grouse conservation to understand the Exchange's unique contribution to the welfare of the Greater Sage Grouse?

As part of the process of developing the Plan, the following steps are suggested:

³¹ Williams, B. K., R. C. Szaro, and C. D. Shapiro. 2009. Adaptive Management: The U.S. Department of the Interior Technical Guide. Adaptive Management Working Group, U.S. Department of the Interior, Washington, DC.

- Review and use as a guideline the U. S. Department of Interior Adaptive Management Technical Guide referred to above;
- Conduct an analysis of how other similar programs are monitored, evaluated, and adaptively managed (e.g. conservation banks, Payment for Ecosystem Services Programs);
- Identify and agree upon clear, measureable biological, economic, and social objectives;
- Determine the methods, metrics, models and indicators that will be used to measure the objectives, including an estimation of monitoring costs;
- Design a monitoring system to track the status of the metrics over time;
- Design and implement an iterative process of using monitoring and reporting information to determine progress toward objectives and make adjustments to the program to better meet objectives.

The Plan should consider:

- Monitoring the Exchange from different scales of focus. For example, the Plan might consider Exchange outcomes from the individual (e.g. single rancher, or single energy company), programmatic (e.g. functional acres conserved compared to impacted), and macro (e.g. contribution of the Exchange toward Greater Sage Grouse Conservation in the State of Colorado) perspectives. Examples of monitoring questions related to each of these scales of focus are provided in Table 1 (next page).
- Monitoring biological, economic, and social attributes outcomes. The Exchange will produce outcomes related to each of these broad categories. In order to understand the Exchange in its full context, it is necessary to monitor items related to each of these categories. Examples are provided in Table 1.
- Comparing outcomes of the Exchange to other similar programs, not only to its own objectives. One goal of the Exchange is to improve upon existing mitigation approaches. Therefore, comparing Exchange outcomes to outcomes produced by other approaches might be useful.
- Developing additional specific criteria or thresholds that trigger specific management actions, as described Phase 1. This will be especially useful for program elements that are untested, such as dynamic offsets, or other elements that necessitate continual monitoring (e.g. functional acre balance).

Table 1. Example monitoring questions by type and scale.

MONITORING QUESTION	TYPE	SCALE
How many functional acres of benefit have been generated through the Exchange as compared to functional acres of impact (i.e. what is the overall biological net benefit)?	Biological	Programmatic
What types of credit projects have been developed and are those the types of projects that the species needs the most?	Biological	Individual, Programmatic
Is the Exchange encouraging and resulting in credit development in the best locations for the species?	Biological	Programmatic
How are energy impact distributed on the landscape and has the Exchange influence the siting of energy developments in beneficial ways for grouse?	Biological	Programmatic
Are the habitat improvements and protections obtained through the Exchange influencing Greater Sage-Grouse populations in the state, and if so, how much?	Biological	Macro
What is the typical financial cost of participating in the Exchange for buyers (e.g. cost/credit)?	Economic	Individual, Programmatic
What is the overall time and cost to complete a transaction for buyers and sellers?	Economic	Individual, Programmatic
Are there discernable trends in the costs for buyers or sellers?	Economic	Programmatic
What are the revenues and profits earned by sellers through credit generation?	Economic	Individual, Programmatic
What is the supply of credits relative to demand?	Economic	Programmatic
What are buyer and seller motivations to participate in the program?	Social	Individual
Are there barriers to entry for buyers and sellers?	Social	Individual, Programmatic
Are any seller motivations independent of financial self-interest, and if so, what are those (e.g. assurances, doing the right thing, complimentary to ranching practices, etc.)?	Social	Individual
Are any buyer motivations independent of financial self-interest, and if so, what are those (e.g. social responsibility reporting, community cooperation, etc.)?	Social	Individual
What perceptions are held of the Exchange by the local and state-wide community?	Social	Macro

PERFORMANCE REVIEW GUIDANCE

Performance review is a third party independent, holistic review of the Colorado Habitat Exchange program. It is a form of peer review that encompasses of every aspect of the program. It is different from scientific review (i.e. the External Formal Peer Review of the Habitat Quantification Tool) in that it is an objective, outside assessment of the performance of the whole program. It is a way of receiving input on the programs performance and outcomes that can inform Phase 2 Monitoring and Adaptive Management.

Performance review should follow a consistent, proven approach and consider a broad range of administrative, usability, and science elements (table 2 below). The U. S. Environmental Protection Agency (EPA) uses scientific peer review process and has published a Peer Review Handbook since 1998. The CHE used the 3rd edition of this handbook as guidance in developing performance review guidelines.³² The Fort Hood Recovery Credit System commissioned a third party performance review in 2010, and that process followed the EPA guidelines mentioned above.³³ The Fort Hood assessment included:

- Selecting a performance review panel;
- Conducting interviews with participants, stakeholders, agencies, and others;
- Site visits by the third party;
- A review of processes, procedures and outcomes; and
- A review of all documents.

Third party performance review is not mandatory, but highly encouraged. Third party performance review should be commissioned by the fifth year of the program or after 20 transactions.

Table 2. Some factors for third party performance reviewer to consider.

ADMINISTRATIVE	USABILITY	SCIENCE
<ul style="list-style-type: none"> ▪ Performance ▪ Transaction cost/efficiency ▪ Tracking, transfer, reporting, and all other processes and forms ▪ Communication ▪ Registry performance ▪ Online tools 	<ul style="list-style-type: none"> ▪ Costs/benefits ▪ User process and integration with other mitigation processes ▪ Leveraging of other resources (e.g. financial, labor, etc.) ▪ Communication ▪ Contracts and forms ▪ Online tools for participation 	<ul style="list-style-type: none"> ▪ Conservation benefits ▪ Monitoring and Verification processes ▪ HQT models ▪ User's Guide/Calculator ▪ Reliability/Repeatability ▪ Accuracy

³² U.S. Environmental Protection Agency. (2006, May 8). *Peer review handbook* (3rd edition). EPA/100/B-06/002. Washington, DC: U.S. Environmental Protection Agency.

³³ Robertson S. and B. H. Rinker. 2010. Third Party Evaluation of Recovery Credit Systems Proof of Concept. Robertson Consulting Group, Inc.