

State of Nevada Conservation Credit System

2018/2019 Findings and
Improvements Report
Agenda Item 10



December 11, 2018

STATE OF NEVADA

CONSERVATION CREDIT SYSTEM

The *Findings & Improvement Recommendations Report* is an annual product of the Nevada Conservation Credit System. The Sagebrush Ecosystem Technical Team of the Nevada Division of State Land's Sagebrush Ecosystem Program produces the report.



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INTRODUCTION

Key to the long-term success of the Nevada Conservation Credit System (Credit System) is the adoption of well-supported improvements to the Credit System. Improvements ensure Credit System policies, procedures, and tools continue to support achievement of the Credit System’s goal: for impacts from anthropogenic disturbances to be offset through restoration, enhancement, and protection that results in net conservation gain for sage-grouse habitat in the State of Nevada. Well-supported improvements depend on: (1) a process that identifies findings from both the operation of the Credit System and new science, and (2) thoroughly analyzed and documented recommendations that stakeholders can review before adoption.

This report contains improvement recommendations for the Credit System Oversight Committee - the Sagebrush Ecosystem Council (SEC) - to consider as part of the 2017 continual improvement process. The findings and improvement recommendations described in this report were identified and formatted through the annual process outlined below. The initial version, version 1.0, of the Credit System Manual and Habitat Quantification Tool (HQT) Methods Document were adopted by the SEC in December 2014. In December 2015, the SEC adopted 11, described in the *2015 Credit System Findings & Improvement Recommendations Report*, which were implemented in version 1.1 of the Credit System Manual and HQT Methods Document. In 2016, the SEC adopted 14 additional improvements, described in the *2016 Credit System Findings & Improvement Recommendations Report*, which were implemented in version 1.3 of the Credit System Manual, HQT, and other program documents.

Annual Process

Each year the Sagebrush Ecosystem Technical Team (SETT) synthesizes findings related to Credit System operations, achievements and challenges, along with any new science relevant to the Credit System. This process of synthesizing findings enables the SETT to identify implementation and policy issues, opportunities for program improvement, and emerging information needs. The SETT develops improvement recommendations for the Credit System that are based on the findings and are considered for adoption by the SEC at the annual *Credit System Improvement Meeting* each December. The findings and improvement recommendations are documented in an annual *Findings & Improvement Recommendations Report* to enable the SEC to make informed decisions and valuable improvements to the Credit System.

The process for producing this report is summarized in Section 3.3: Adaptively Managing the Credit System in the Credit System Manual. During the implementation of the first continual improvement cycle in 2015, the SETT defined a slightly revised five-step annual process, which is illustrated in Figure 1 below. The red circle indicates the steps in the continual improvement cycle during which this report is produced and the SEC considers adoption of the improvement recommendations in this report.

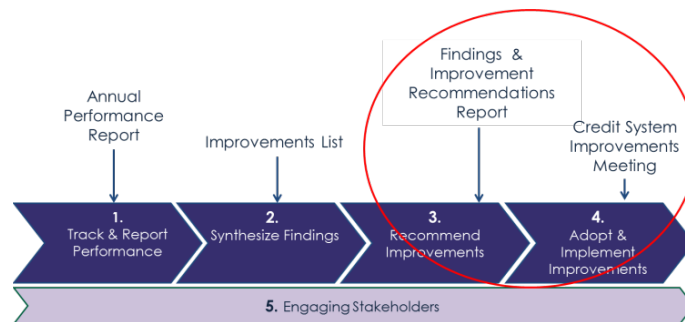


Figure 1: Credit System continual improvement process

2018/2019 DRAFT FINDINGS

Findings

This section contains a synthesis of key findings identified by the SETT, many of which are directly relevant to potential or recommended improvements to the Credit System. Findings not directly linked to improvement recommendations either support existing policy, require actions beyond the SETT's purview, are not currently actionable due to incomplete information, or lack of implementation resources.

The findings are categorized as "Operational Findings" or "Research & Monitoring Findings." Operational findings are derived from stakeholder feedback and from on-the-ground learning associated with testing and implementation of Credit System policies, procedures and tools. Research and monitoring findings are associated with new science or drawn from the results of monitoring data.

Improvement Recommendations

This section is a distillation of recommended improvements to the Credit System proposed by the SETT ranging from management strategies and policies to operational procedures and tools. Included are improvements that will affect the goal or scope of the Credit System, related policies and plans, state or federal agency partnerships, administrative responsibilities, or administrative liability, or improvements that will have a meaningful impact on credits and debits generated from future projects, or a meaningful impact on program operations. The SETT creates the improvement recommendations based on the findings and thorough analysis of potential improvements identified. The SETT presents these recommendations to the SEC for discussion and approval.

Within each category, the recommendation includes:

- Summary of improvement
- Specific improvement recommendation
- Rationale to support recommendation details

Each finding is summarized in the table below and detailed hereafter.

Potential Findings and Improvements Recommendations

- 1 Finding:** Additional anthropogenic disturbance categories should be defined or clarified within the Conservation Credit System including mining exploration, pipelines, and landfills; mining expansions will also be examined to identify a potential minimum debit purchase in situations where mitigation using the CCS was not previously used.
- 2 Finding:** The restoration and uplift processes need additional detail outlining each step, such as how release phases can work and how to further incentivize these actions.
- 3 Finding:** Consideration of less-frequent reverification process in order to increase confidence and reduce credit developer expenses.
- 4 Finding:** Proper Functioning Condition data is required to be gathered on every project, and it is incorporated into the management plan to be maintained or improved. However, there is no incentive to improve riparian conditions, so many project proponents maintain the riparian area at the level of function determined by the first verification.

1 – ADDRESSING PIPELINES AND LANDFILLS WITHIN THE CCS

Finding

Pipelines and landfills are anthropogenic disturbance categories identified in the State Plan and CCS manual; however, there is no weight or distance associated with these categories due to the lack of science.

- A. Pipelines are identified as an anthropogenic disturbance within the State Plan and CCS Manual; due to the lack of scientific literature on their direct and indirect impacts, there is no weight or distance associated with pipelines and therefore are not calculated as a disturbance within the HQT.
- B. Landfills are identified as an anthropogenic disturbance within the State Plan and CCS Manual; due to the lack of scientific literature on their direct and indirect impacts, there is no weight or distance associated with landfills and therefore are not calculated as a disturbance within the HQT.

Improvement Recommendation

Summary

The SETT recommends that pipelines not associated with another anthropogenic disturbance category (e.g. Mine, Geothermal) will receive an independent weight and distance. The SETT recommends that above ground pipelines receive a 50% weight and 1 km distance and below ground pipelines receive a 25% weight and 1 km distance.

The SETT recommends that landfills and transfer stations that are either permitted or approved by Nevada Department of Environmental Protection be classified the same as the Urban – Low anthropogenic category (75% weight, 3 km), if not already within an Urban – Low disturbance footprint, due to their similar impacts to urban areas, of which some impacts include noise, traffic, and ravens. Existing landfills and transfer stations are likely to already be in close proximity to urban areas; the Urban – Low database in the HQT will be updated to include these footprints.

Specific Improvement Recommendation

A. Pipelines

The SETT recommends that above ground pipelines should receive a 50% weight, 1 km distance below ground pipelines should receive a 25% weight and 1km distance.

Table 1 in the User’s Guide regarding pipelines will be updated to contain the following information:

TYPE	SUBTYPE	TYPE CODE ^t	SUBTYPE CODE ^t	WEIGHT (%)	DISTANCE (Meters)
Pipelines	Above Ground	Pipelines	Above_Ground	50%	1000 m
Pipelines	Below Ground	Pipelines	Below_Ground	25%	1000 m

B. Landfills

The SETT recommends that landfills, transfer stations, and other waste disposal sites requiring a permit or approval by the Nevada Department of Environmental Protection should be included within the Urban – Low anthropogenic disturbance category and receive a 75% weight, 3 km distance. The Urban – Low database within the HQT will be updated to include footprints of landfills and transfer stations if they are not already included within an Urban – Low delineation.

Rationale Supporting Recommendation Details

A. Pipelines

Pipelines that are associated with a mining or geothermal operation are either considered part of that disturbance category or ancillary to the operation if they are located outside the primary disturbance footprint. However, a proposed pipeline, above or below ground, independent of other main disturbances classified in the CCS are not currently calculated in the HQT.

There is little science directly on how pipelines affect sage-grouse populations. However, looking at the components of pipelines, we would anticipate similar direct and indirect effects as the literature has shown roads and tall structures to have. There is direct loss of habitat from the pipeline itself (if above ground) or surface area loss from an underground pipeline in addition to pump stations and other infrastructure associated with the pipeline. Ground disturbance and potential for invasive species establishment and spread can be significant depending on the extent of proposed ground disturbance, existing soil types, local environmental conditions, and other factors. In addition to direct impacts, there are potential indirect impacts from spread of invasive species into surrounding habitat, operation and traffic noise from pump stations, and ravens and other birds of prey that may use an above ground pipeline or infrastructure for perching or nesting. Required maintenance and monitoring of stations (i.e., transfer/pump) and the pipeline (i.e., driving or flying inspections) can represent continued disturbance for potentially the lifetime of the project.

Below ground pipelines are likely to have a similar impact as a low use road and are therefore given the same weight and distance (25% weight, 1km); periodic traffic for maintenance of the pipeline is expected but without the infrastructure that could provide nesting or perching opportunities for ravens and raptors. Above ground pipelines receive a higher weight (50% weight, 1km) than below ground pipelines due to the increased maintenance likely to be associated with above ground infrastructure. In addition, ravens and raptors may have more opportunities to use infrastructure that is accessible for either perching or nesting, thus increasing potential indirect impacts associated with raven and raptor use and abundance.

B. Landfills

Landfills are an important anthropogenic disturbance category that are identified within the State Plan, but do not have an assigned weight or distance. Landfills and transfer stations are often associated with urban areas, even if located some distance away from populated areas. Disturbances associated with landfills include traffic, equipment operation, etc., that produces noise and activity similar to what can be expected within urban areas. Landfills also can attract large concentrations of ravens. Ravens are very successful nest predators of sage-grouse, and anthropogenic food and perching subsidies such as landfills have been shown to attract large concentrations of ravens which can lead to increases in juvenile survival and local populations (Webb et al. 2004, Kristan and Boorman 2007, Peebles and Conover 2017; see CCS HQT Document for additional references).

Due to the relatively close proximity of existing landfills and transfer stations to towns and communities and similar impacts to urban areas, this disturbance type should be included within the Urban – Low disturbance category that is defined in the CCS. Most towns and communities in rural Nevada that meet the criteria are already classified as Urban – Low. In addition to landfills and transfer stations having a similar impact as Urban – Low areas, the attraction to landfills by ravens creates additional food subsidies for ravens and can have significant indirect impacts to local sage-grouse populations.

Existing landfills and transfer stations will be incorporated into the Urban – Low disturbance category and removed from the landscape as habitat within the Habitat Management Categories. This would not include dead animal pits and other waste sites associated with agricultural or ranching activities. If landowners choose to participate in the CCS, the landowner and SETT will discuss ways to cover or mitigate dead livestock and other waste to lower raven occurrence within the project area.

Literature Cited

- Bui, T.V., Marzluff, J., and Bedrosian, B. 2010. Common Raven Activity in Relation to Land Use in Western Wyoming: Implications for Greater Sage-grouse Reproductive Success. *The Condor* 112:65–78.
- Kristan, W.B., and Boarman, W.I. 2007. Effects of Anthropogenic Developments on Common Raven Nesting Biology in the West Mojave Desert. *Ecological Applications* 17:1703–1713.
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- Webb, W.C., Boarman, W.I., and Rotenberry, J.T. 2004. Common Raven Juvenile Survival in a Human-Augmented Landscape. *The Condor* 106:517–528.

2 – ADDRESSING OPTIONS FOR INCENTIVIZING UPLIFT/ENHANCEMENT ACTIONS WITHIN THE CONSERVATION CREDIT SYSTEM

Finding

The process where uplift credits are generated and sold is currently complicated and presents a disincentive.

- Uplift credits currently are quantified during regularly scheduled verifications.
- Each uplift credit sale will require a separate term which will occupy different parts of an original credit project for different timelines, with 30 years being the minimum.

Improvement Recommendation

Summary

Sagebrush habitat in the Great Basin is being lost at an alarming and increasing rate mainly due to wildfire. 2,140,392 acres have been lost to wildfire in 2018 alone with 5,165,936 acres lost to wildfire within the last 10 years (NIFC). In 2017-2018, 6.35% of Greater Sage Grouse Habitat was lost to wildfire. Mitigation through the CCS to date has been focused mainly on generating credits associated with preservation and continued habitat quality on private lands. Proactive uplift actions (restoration and enhancement) remain complicated and difficult to implement. Enhancement and restoration actions are expensive, in part due to the concept behind how credit project baseline is calculated. This can at times remove financial incentives for uplift actions. These types of proactive actions however are crucial to providing a comprehensive conservation effort. In an effort to emphasize proactive activities that directly address sagebrush ecosystem acreage loss, the process to achieve uplift actions need to be simplified and encouraged within the CCS. The SETT recommends laying a foundation that addresses timing and contractual issues within the current system. This foundation involves assigning varying terms for uplift actions and allowing debit projects to adjust those varying terms to their specific term needs. Uplift actions may be assigned terms less than 30 years and debit projects may be allowed to adjust those terms to longer terms utilizing a prorating concept. This recommendation is currently directed at application on private land, however it is anticipated that this foundation will apply similarly to public lands and enable easier development of enhancement and restoration credits on public lands. Further discussions with federal agencies will be required to detail the processes required for public lands application.

Specific Improvement Recommendation

Uplift within the CCS is currently quantified during the regularly scheduled 5 year verification events. If uplift is found, those additional credits may be sold with a management plan, financial assurances, reserve account contribution, and minimum term length of 30 years separate from the original project. The requirement to commit to a 30+ year contract when uplift is found midway through a preservation project is a significant disincentive for implementing uplift actions. Even when uplift may be found during the regularly scheduled 5 year verification, in some scenarios uplift credits may not be sufficiently valuable to justify the obligation of a separate long term management contract for what may be a subset of a larger portion of land. The SETT recommends that uplift actions be detailed in an uplift plan before actions are implemented, and that uplift credits be assigned a term length equal to the length that it took to achieve the uplift. The year in which uplift activities were begun will establish the starting time for

calculation of the term, and the year of credit verification will fix the ending point. For a credit project which implemented uplift actions immediately following the signing of a participant contract, and where uplift was measured at year 20 the term for those credits would be 20 years. This creates a problem with the potential sale of those credits, as the minimum term available for all debit projects is 30 years. The SETT proposes that a prorating concept be used to allow debit projects to adapt the available credits for use in different required terms. The following prorating formula would be applied to determine the number of credits available for offsetting a specific term:

$$X = \frac{T_c}{T_d} * C$$

Where:

C = Number of uplift credits

T_c = Term of uplift credits (Time it took to achieve uplift)

T_d = Term of debit project

X = Number of credits available for offsetting disturbance

Following the above formula, 10 debits with a 20 year term would be prorated 6.66 credits with a 30 year term. Appendix A includes a table and chart illustrating combinations of different debit terms using the above equation. Figure 1 also illustrates the concept.

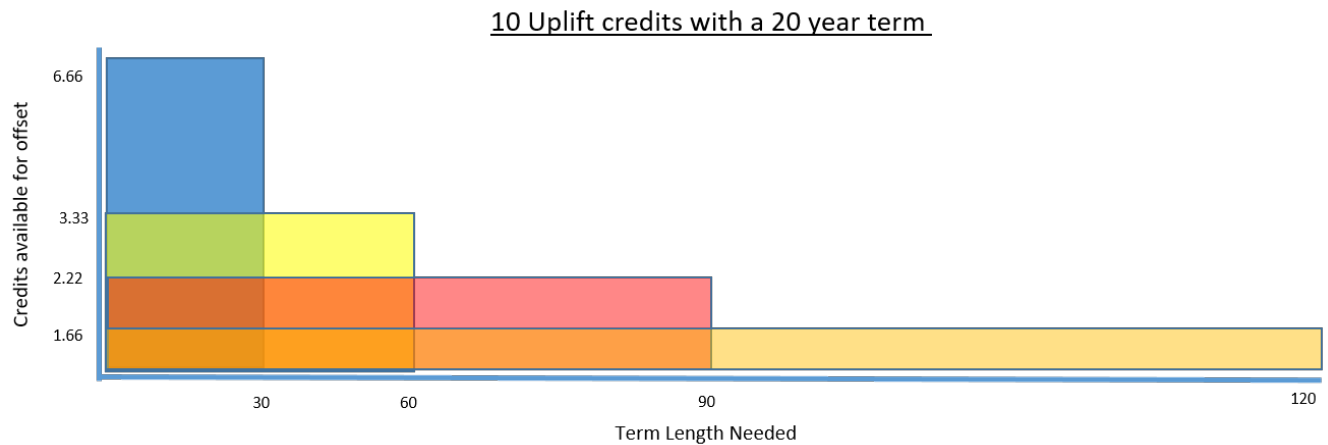


Figure 1. Credits with a shorter term than is required by a purchaser may be converted into longer terms utilizing a prorating concept.

Rationale Supporting Recommendation Details

While habitat is being lost in Nevada at unprecedented rates, flexible enhancement and restoration actions need to increase. A prorating concept enables the CCS to provide a foundation for flexibility that is needed to sell credits with terms less than 30 years. The ability to market small amounts of credits without committing to a new 30+ year term will remove one large barrier to uplift development. It is anticipated that removing barriers to uplift within riparian areas will result in more enhancement in those areas. While further incentives may be required in the future, this approach will lay a foundation for a process that can

incentivize more uplift. A more comprehensive framework will be built in the future to further streamline and incentivize uplift actions.

Future applications for this concept may include:

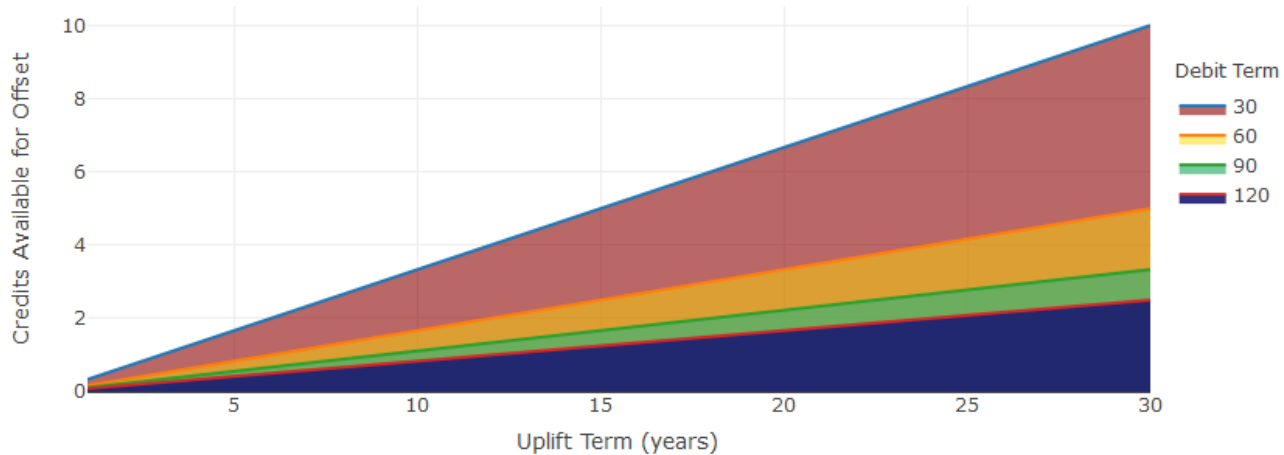
1. Uplift actions could represent discrete packages of enhancement efforts *prior* to a sale and thus have no assumption of durability. Sales could be executed with fewer contractual obligations.
2. An approach with fewer contractual obligations allows the CCS to focus on public lands in a more direct way. Further details are being developed with federal partners.
3. This foundation will directly support a framework that can establish different credit categories based on their relevance to compensatory mitigation (i.e., uplift is more proactive than preservation).

Appendix A

Table 1. 10 credits with a range of uplift terms are compared to a range of debit terms using the prorating formula. Bolded numbers represent the extreme ends of the ranges. An uplift credit that took 30 years to achieve paired with a debit term that needed a 30 year term would equal a 1:1 relationship.

Number of Uplift credits	Uplift Term	Debit Term Needed	Credits Available For Offset	Debit Term Needed	Credits Available For Offset	Debit Term Needed	Credits Available For Offset	Debit Term Needed	Credits Available For Offset
10	1	30	0.333333333	60	0.166666667	90	0.111111111	120	0.083333333
10	2	30	0.666666667	60	0.333333333	90	0.222222222	120	0.166666667
10	3	30	1	60	0.5	90	0.333333333	120	0.25
10	4	30	1.333333333	60	0.666666667	90	0.444444444	120	0.333333333
10	5	30	1.666666667	60	0.833333333	90	0.555555556	120	0.416666667
10	6	30	2	60	1	90	0.666666667	120	0.5
10	7	30	2.333333333	60	1.166666667	90	0.777777778	120	0.583333333
10	8	30	2.666666667	60	1.333333333	90	0.888888889	120	0.666666667
10	9	30	3	60	1.5	90	1	120	0.75
10	10	30	3.333333333	60	1.666666667	90	1.111111111	120	0.833333333
10	11	30	3.666666667	60	1.833333333	90	1.222222222	120	0.916666667
10	12	30	4	60	2	90	1.333333333	120	1
10	13	30	4.333333333	60	2.166666667	90	1.444444444	120	1.083333333
10	14	30	4.666666667	60	2.333333333	90	1.555555556	120	1.166666667
10	15	30	5	60	2.5	90	1.666666667	120	1.25
10	16	30	5.333333333	60	2.666666667	90	1.777777778	120	1.333333333
10	17	30	5.666666667	60	2.833333333	90	1.888888889	120	1.416666667
10	18	30	6	60	3	90	2	120	1.5
10	19	30	6.333333333	60	3.166666667	90	2.111111111	120	1.583333333
10	20	30	6.666666667	60	3.333333333	90	2.222222222	120	1.666666667
10	21	30	7	60	3.5	90	2.333333333	120	1.75
10	22	30	7.333333333	60	3.666666667	90	2.444444444	120	1.833333333
10	23	30	7.666666667	60	3.833333333	90	2.555555556	120	1.916666667
10	24	30	8	60	4	90	2.666666667	120	2
10	25	30	8.333333333	60	4.166666667	90	2.777777778	120	2.083333333
10	26	30	8.666666667	60	4.333333333	90	2.888888889	120	2.166666667
10	27	30	9	60	4.5	90	3	120	2.25
10	28	30	9.333333333	60	4.666666667	90	3.111111111	120	2.333333333
10	29	30	9.666666667	60	4.833333333	90	3.222222222	120	2.416666667
10	30	30	10	60	5	90	3.333333333	120	2.5

10 Uplift Credits Available



3 – CREDIT SITE VERIFICATION

Finding

The current process for verification of credit projects involves a verification every five years at less effort than the original HQT quantification effort by a 3rd party.

Issues with this process include the following:

- Verification at five year increments with reduced effort is unlikely to deliver adequate information to effectively verify project condition, quantify uplift, or base actions off the results without excessive costs.
- The process also lacks verification at the same effort of initial HQT quantification over the course of the project, instead relying on abbreviated verification efforts piecemealed over time to represent verification in its entirety, which is also more costly.
- Excessive focus is placed on minimal HQT transects at short-term intervals rather than qualitative assessments better focused on management and habitat conditions on entire project areas.
- A heavy reliance on 3rd party verifiers also limits long-term contact between the SETT and credit producers and the SETT's onsite understanding of projects.

A process is needed whereby adequate data are collected, costs to the project proponent are reduced, and relationships are further enabled.

Improvement Recommendation

Summary

The SETT recommends improving the process that has been currently envisioned to periodically verify the performance of CCS credit projects to include the following:

- Increased sampling on 3rd party verification efforts with a reduced number of assessments.
- Increased use of GIS and remote sensing applications to assess project compliance/performance.
- Increased SETT engagement in periodic onsite qualitative assessments with the credit producer.

Specific Improvement Recommendation

The SETT recommends the following process to improve plans for verification within the CCS. Verification by a 3rd party is recommended to be completed in 15 year increments. For a standard 30 year project verification would occur in year 15 at 100% of the initial HQT quantification effort. Flexibility would be added when necessary. At five year increments with the exception of the years represented by verification, the SETT staff member assigned to the project will instead conduct a five year quality assurance assessment including a GIS evaluation of the project area using the latest aerial imagery to assess any changes including anthropogenic disturbances, USGS cheatgrass and wildfire layers, the Sage Grouse Initiative mesic layer, the Rangeland Analysis Platform, and other remote sensing tools as they become available. As part of this five year quality assurance assessment, the SETT staff member assigned to the project will then schedule a visit to the site to meet with the credit producer, conduct annual monitoring with the credit producer, assess whether the project area is being managed as committed to, and provide a qualitative assessment of the habitat and critical areas within the project area. Projects longer than 30 years would have further verification according to 15

year intervals. Five year quality assurance (QA) assessments by the SETT will still occur at five year increments in which verification does not occur.

This approach allows flexibility for the implementation of improved methodologies for verification provided that they can be compared to the initial HQT quantification efforts. Improved methodologies would need to remain consistent with project costs for which funds have been set aside within the financial assurances of projects.

Indications of a trend in habitat decline or deviation from management commitments found by the SETT during five year quality assurance assessments or verification efforts could lead to further and more robust evaluation of projects by the SETT. The relatively comprehensive annual management and monitoring report to be turned in by all credit producers each year will add to the considerable knowledge about the management and condition of the project from the recommended verification process herein. Concerns over any of these efforts or the reports describing them could result in spot checks and audits by the SETT, which can already be conducted randomly as described within the CCS Manual. After indication of significant onsite degradation or mismanagement through any of the above vectors and at the discretion of the council, full verification may be required by a 3rd party verifier any time outside of the 15 year window with costs required to be covered by the credit producer.

The SETT proposes the following definitions if the recommendation is approved for the purpose of added clarity:

Initial HQT Quantification would refer to the first HQT effort that generally establishes the credits available for preservation or the debits calculated from planned disturbance through determination of pre-project condition, which would also be used as the benchmark from which to later quantify uplift.

Five Year Quality Assurance (QA) Assessments would refer to the SETT's GIS and onsite efforts to assess project conditions on credit projects at five year increments with the exception of years within 3rd party HQT verification windows.

Verification would refer to HQT efforts conducted by 3rd party verifiers after Initial HQT Quantification to determine whether habitat conditions have been maintained or improved. Verification would be conducted in year 15 of a 30 year term of commitment and so on approximately every 15 years at a similar or greater sampling effort as the initial HQT quantification effort. Uplift verification efforts for map units which enhancement or restoration efforts were implemented would quantify the credits available from successful achievement.

The CCS Manual, Habitat Quantification Tool, and User's Guide documents would be updated to reflect the recommendation if approved.

Rationale Supporting Recommendation Details

The rationale behind the recommendation is detailed in the table below in the form of the pros and cons perceived by the SETT of the current and proposed verification approaches. Although never formally adopted, a 25% verification effort at five year intervals was assumed most likely and has been considered below under the current process.

	Current Verification Process	Recommended Verification Process
Pros	<ul style="list-style-type: none"> • Verifiers maintain considerable project understanding & are able to maintain relationships with credit producers • SETT travel reduced with a potential for reduced workload. 	<ul style="list-style-type: none"> • Verification more robust due to assessment of whole project at one time to better detect changes over time • Verification of the entire project occurs sooner • Reduced costs for credit producers for 3rd party verification with reduced financial assurances required • Workloads diversified b/w SETT & 3rd parties • A qualitative component is added that assesses the entire project & particularly sensitive areas • Rapidly changing technology allows full verification to be conducted with best methods available at one time & takes into account better tools will continue to be developed to assess change remotely • Better annual monitoring will occur over time with increased SETT guidance & involvement • Better project understanding by the SETT & relationships with credit producers may create more proactive management & reduce need for spot checks, audits, & other reactive actions • Greater flexibility for verification which may help avoid sampling in severe drought years
Cons	<ul style="list-style-type: none"> • Full verification at 20 years when combined efforts at five year intervals are considered • Too reliant on 3rd party verifiers for SETT to maintain relationships & adequate project knowledge • Higher costs for credit producers 3rd party verifiers to mobilize every five years • Higher costs for credit producers for 3rd party verifiers through piecemealed efforts that over 30 years account for 150% of original HQT quantification effort • All areas either sampled with low effort or certain areas left without verification for long periods • Puts too much focus on a few transects & not enough on holistic project condition & management • Too little information received for decision-making unless effort increased significantly • Data from five year verification may be constantly changing due to improved methodologies & technological advances complicating temporal comparisons & piecemealed assessment of entire project • A rigid schedule could lead to difficult implementation 	<ul style="list-style-type: none"> • Greater number of site visits for SETT & potentially greater SETT workload. • Reduces attention on transects & assessment of habitat attributes as measured in the HQT

