SAGEBRUSH
CONSERVATION EFFORTS DATABASE

User Manual

Version 2.0.0

A Living Document That Will Be Refined With Use

U.S. Fish and Wildlife Service
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CONSERVATION EFFORTS DATABASE EXECUTIVE SUMMARY

The sagebrush ecosystem is the largest ecosystem type in the continental U.S., providing habitat for more than 350 associated fish and wildlife species. In recognition of the need to conserve a healthy sagebrush ecosystem to provide for the long-term conservation of its inhabitants, the US Fish and Wildlife Service (Service) and United States Geological Survey (USGS) developed the Conservation Efforts Database version 2.0.0 (CED). The purpose of the CED is to efficiently capture the unprecedented level of conservation plans and actions being implemented throughout the sagebrush ecosystem and designed to capture actions not only for its most famous resident, the greater sage-grouse (*Centrocercus urophasianus*; hereafter, sage-grouse) but for the other species that rely on sagebrush habitats.

The Service completed a range-wide status review of the greater sage-grouse in September 2015, resulting in a 'not warranted' finding, under the Endangered Species Act (ESA). As part of that status review, the Service evaluated a combination of voluntary, incentive-based efforts, habitat restoration projects, and management through regulatory mechanisms. The Service used the Conservation Objectives Team final report (COT report; USFWS 2013), and the threats described therein, as guidance to identify the conservation actions that would address and reduce the threats and/or the associated impacts. After coordinating and collaborating with State and Federal partners, a list of conservation actions to address and ameliorate those threats was generated for use in the CED.

The Service will continue to work collaboratively with its partners to identify new information to collect and how to utilize it as we gain new insight on links between conservation efforts and biological responses to sagebrush habitats as well as resources values for particular species. The Service has made a commitment to make these adjustments to reflect our shift, and the shift of many of our conservation partners, to an ecosystem based approach to conservation, as well as to be adaptable and make changes in the future based on release of new science and information that informs effective conservation.

While the focus of the CED has shifted to focus on the entire ecosystem, it will continue to serve as the data collection tool to support analyses and inform any future greater sage-grouse status reviews, including but not limited to the 2020 status review described in the 2015 federal register document (80 FR 59857).

The CED is easy to use. This is a web-based database with a geospatial component that is used to collect information on the plans and projects currently being implemented, or with a high likelihood of being implemented in the near future, to conserve sagebrush habitats as well as the species dependent on them (i.e. sage-grouse, Brewer's sparrow, etc.). Developed to provide a secure and transparent way to gather information on sagebrush conservation efforts, the CED allows multiple users to enter information about their conservation efforts and link them to one or more threats to a species. Conservation plans, individual project descriptions and reports, tabular data from large data sets, spatial data, and documentation of data sources can all be entered in the CED, which is housed on the data sharing platform, Landscape Conservation Management and Analysis Portal (LC MAP). LC Map is managed by the Great Northern Landscape Conservation Cooperative (GNLCC). The CED is user-friendly for all technical levels and was designed with efficiency in mind. No GIS skills are required for entering data on individual plans or projects, and USGS programmers are available to help with batch uploads of large data sets or GIS files.

The CED is secure. Agencies and organizations will work with the Service/USGS CED Team to establish approving officials to determine who can enter and edit data in the CED for their organization. These agency-designated approving officials will also allow for important oversight of data entry and QA/QC.

The CED is transparent. The information on the CED will become part of the public record and may be publicly disclosed as part of the Service's administrative record or in response to a request under the Freedom of Information Act (FOIA). Additionally, we offer users the option to make their data readily available to anyone, or to a subset of registered users of their choosing.

The CED is simple. Each project or plan entry consists of six main components:
1. Basic project information
2. Location information (easy-to-use onscreen digitize*, upload shapefiles*, and in some cases, selection of 'canned' areas of interest (States, Counties, etc.).
3. Activities, subactivies, and metrics*
4. Objectives* and likely effects* of the activity
5. Threats addressed
6. Uploading supporting documents
7. Information describing implementation and [biological] effectiveness*

   * *Some components are only required for specific activities and subactivities*

How will the information be used? Each plan or project/treatments entered in the CED will be linked to one or more of the following thirteen threats (in alphabetical order) identified in the COT report (USFWS 2013) as well as areas of interest relevant to sage-grouse. As we gain better understanding of the threats contributing to habitat loss, fragmentation and degradation in the sagebrush ecosystem, some of these threats and conservation actions aimed at reducing or eliminating their impacts, we will adjust accordingly in an effort to better represent the potential benefit of the action implemented.

- Agricultural Conversion
- Conifer Encroachment
- Energy Development
- Fire
- Free-Roaming Equids (Feral Horses and Burros)
- Improper Grazing/Range Management
- Infrastructure
- Isolated/Small Population Size
- Mining
- Noxious Weeds/Annual Grasses
- Recreation
- Sagebrush Elimination
- Urban Development

We will review the information about individual projects and plans entered into the CED to evaluate the extent to which these efforts will reduce or eliminate the threats to sagebrush habitats (and species dependent on them) identified in the COT report (USFWS 2013), with the goal of compiling these results to generate a range-wide assessment of sage-grouse and sagebrush conservation efforts. The CED does not collect information about the distribution or severity of threats to sagebrush (or sage-grouse); that

information will be compiled separately by the Service and available for viewing when using the CED's Interactive Map. However, some threat information will be displayed in the background of the CED (and the Interactive Map) to aid in the evaluation of conservation efforts.

An overview of some of the basic components of the CED is provided in Fig. 1. This schematic is not all-inclusive, but provides general information on the structure of the database. For more information, please visit https://conservationefforts.org
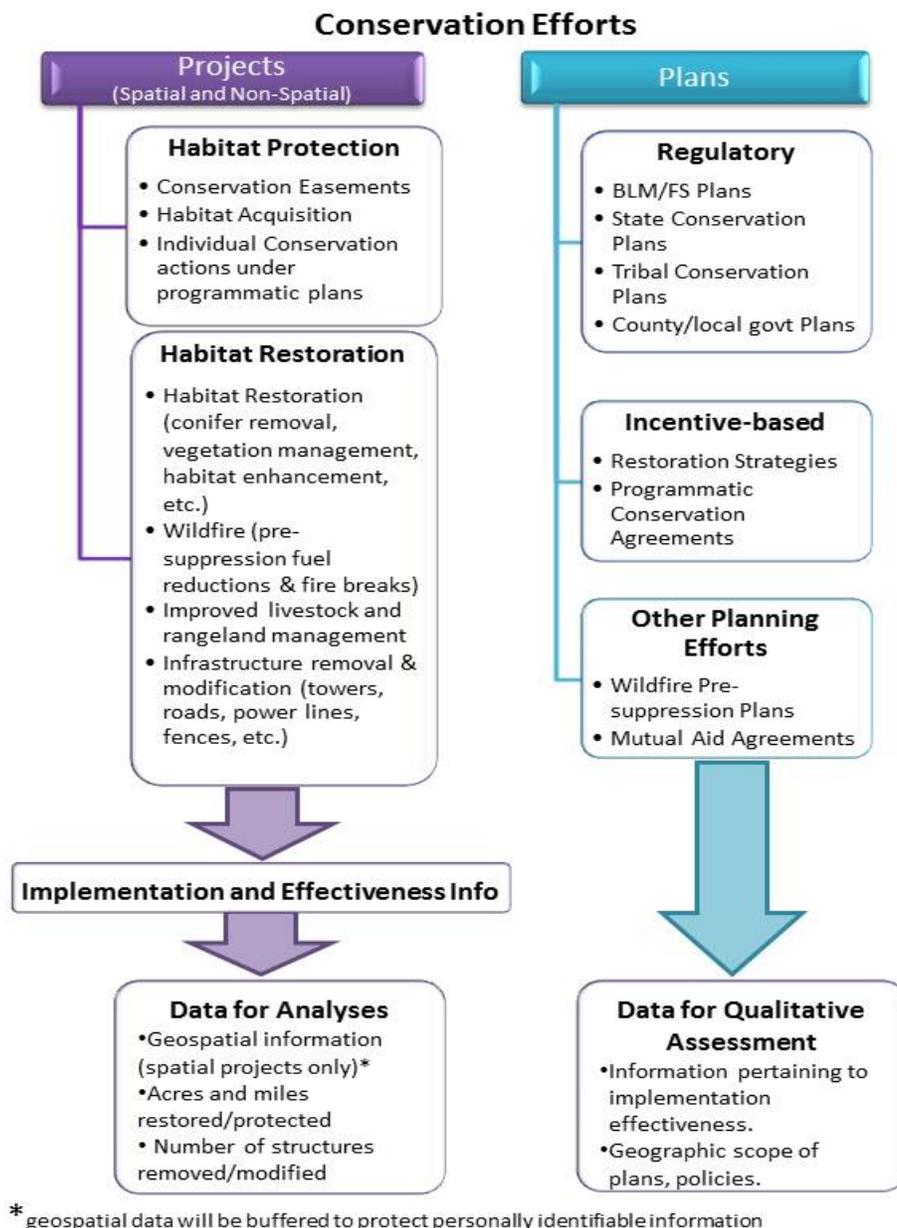

Conservation Efforts

Projects (Spatial and Non-Spatial)

Habitat Protection
• Conservation Easements
• Habitat Acquisition
• Individual Conservation actions under programmatic plans

Habitat Restoration
• Habitat Restoration (conifer removal, vegetation management, habitat enhancement, etc.)
• Wildfire (pre-suppression fuel reductions & fire breaks)
• Improved livestock and rangeland management
• Infrastructure removal & modification (towers, roads, power lines, fences, etc.)

Implementation and Effectiveness Info

Data for Analyses
•Geospatial information (spatial projects only)*
•Acres and miles restored/protected
• Number of structures removed/modified

Plans

Regulatory
• BLM/FS Plans
• State Conservation Plans
• Tribal Conservation Plans
• County/local govt Plans

Incentive-based
• Restoration Strategies
• Programmatic Conservation Agreements

Other Planning Efforts
• Wildfire Pre-suppression Plans
• Mutual Aid Agreements

Data for Qualitative Assessment
•Information pertaining to implementation effectiveness.
•Geographic scope of plans, policies.

* geospatial data will be buffered to protect personally identifiable information

Figure 1. Simplified portrayal of the CED structure and information flow.

1.0 CED DATA PROVIDERS

Conservation partners throughout the sagebrush biome, spanning 13 states and 2 provinces, are undertaking unprecedented actions to conserve sagebrush (and sage-grouse) habitats.   These conservation actions include, but are not limited to: landscape-scale Federal and State management plans that provide regulatory mechanisms, incentives, and/or strategic approaches to conserve important sage-grouse habitat as well as on-the-ground habitat restoration projects such as addressing piñon-juniper encroachment, improving wet meadow habitats, and restoring habitat loss to fire for the conservation of sage-grouse habitats.

An important element of our long-term monitoring will be a compilation of the conservation efforts currently being implemented, or planned for implementation in the near future, to conserve sagebrush habitats and the species dependent on them. The CED was developed to collect this information from partners in a standardized way so that we can assess the distribution of various types of conservation activities and evaluate their effectiveness in reducing or eliminating threats across the ecosystem. This standardized way of collecting information related to conservation efforts will allow the Service to work with our partners to monitor, long-term, the benefits realized through effective implementation of conservation efforts.

1.1 CED Data Providers

Federal agencies, State agencies, Tribal governments, local governments, non-governmental organizations (NGOs) members of industry, universities, and others will all be able to enter information describing their conservation efforts in the CED.

Data providers are asked to enter information describing the conservation plans and projects/treatments they have implemented or developed that will conserve sagebrush habitats and associated species, and also provide information on the implementation and effectiveness of those conservation efforts. Section 2.2 and 2.3 provide more detailed information on the elements of those three components.

> **Projects vs. Treatments**
>
> For the purposes of this document, the terms 'projects' and 'treatments' are used in a general sense. We discuss how to report spatial information associated with efforts in Section 7.

1.2 CED Privacy and Transparency

All data in the CED will become part of the public record and may be publicly disclosed as part of the Service's administrative record or in response to a request under the Freedom of Information Act (FOIA).

All interested persons (general public) will be able to view a scalable map of all conservation efforts entered in the CED. An example is provided in Figure 2. The finest viewable scale will be set at 1 inch = 1 mile. This synoptic map will provide an overview of the database contents and potentially generate further interest in local restoration and conservation efforts. The Interactive Map will also aid in coarse-scale siting of potential conservation efforts (see Section 5.0). A polygon (and in limited cases, a point) on the map will represent a conservation effort, also known as a 'database record', for that location.

The following information will be visible to any database user for each conservation effort, or record, on the map:

- Effort ID Number
- Effort Name
- Subactivity
- Total acres (and in some limited cases, 'total miles')
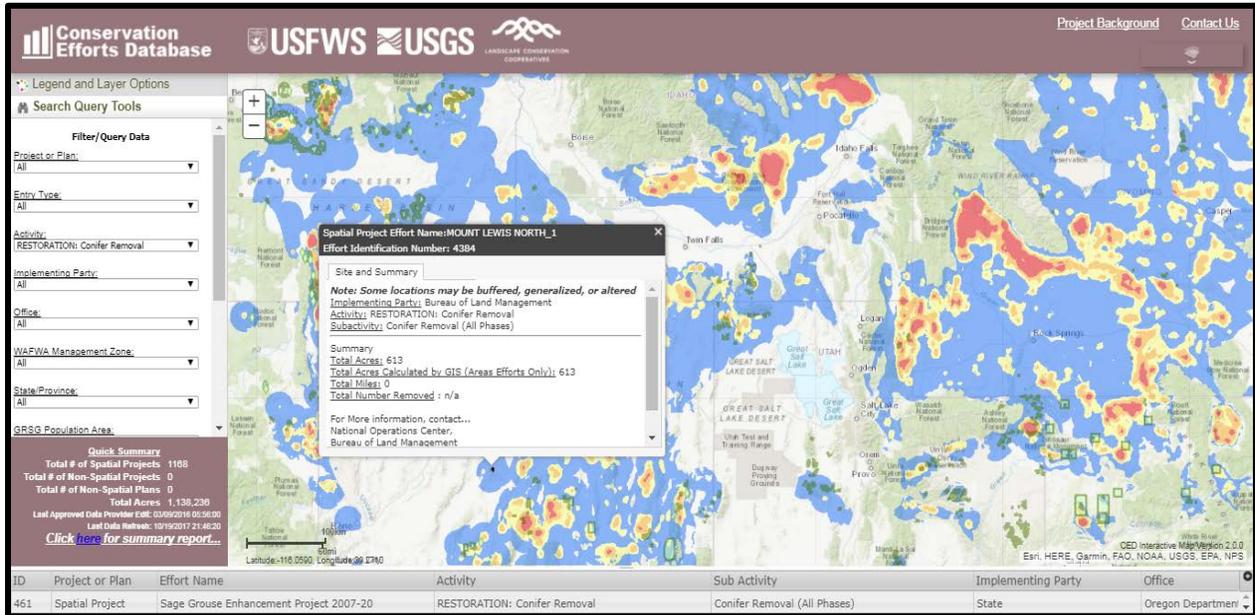- Implementing party and contact information

Figure 2. Sample Map Viewable by Public

Registered CED users that provide data in the CED will be able to generate reports and maps for the data that they have provided. At this time, no users of the CED other than the Service may generate comprehensive reports from multiple database records; however, the Service is exploring options to make some information readily available. However, all interested individuals or parties will be able to contact any implementing party to request additional information about a plan or project. If a CED data provider wants information in the CED that was provided by a different CED data provider, they need to obtain that information directly from the data owner. This will provide security for CED data providers and allow for them to communicate directly with those requesting additional information and provide responses to those requests.

2.0 CED CONTENTS AND STRUCTURE

The CED is focused on collecting information on conservation efforts that have been implemented after 2009 and those conservation efforts that have a high likelihood of being implemented in the near future. If conservation partners have data on significant conservation efforts that were not provided or were not yet effective prior for the 2010 finding, the CED will accept data prior to 2009, and we encourage you to work with the CED to get that information uploaded. Some of that information may have been collected as part of the data call for the 2015 greater sage-grouse status review; however, no

information was entered into the database after February, 2015. The CED will be 'open' beginning in October, 2017 and will remain open. The Service has the ability to use a 'snapshot' of the data provided at any time, and this will hopefully preclude or reduce the need to have a concentrated data call for any potential future actions as well as preclude the CED from needing to be 'closed' during any analysis.

The CED is designed to capture conservation efforts that will help reduce or eliminate the impacts associated with threats or otherwise improve the sagebrush habitats. As defined in the Policy for Evaluation Conservation Efforts (PECE Policy; 68 FR 15100, April 28, 2003), conservation efforts include plans such as conservation agreements, conservation plans, management plans, and specific actions to implement those plans (such as juniper removal projects, wet meadow restoration, and restoration of habitats lost to fire). Activities such as conducting population surveys, mapping habitat, monitoring plans, public outreach, and holding meetings of local working groups to design projects, while important, are not intended for entry in the CED.

Each CED record identifies an effort type, activity, subactivity, and one or more threats to provide a structure for organizing information about sagebrush conservation efforts. Project efforts also identify quantifiable metrics such as acres (or potentially 'miles' in some limited cases) of habitat restored. Individual subactivities or metrics listed, whether related to an on-the-ground effort or related regulatory mechanism/plan, are not necessarily applicable everywhere as the threats impacting sagebrush vary across the landscape in presence and intensity.   There are no implications for not reporting data that does not apply to, or is not available for, each conservation partner. However, some fields are required, and failure to provide that information may result in a record not being accepted in the CED. The Service has worked to reduce any fields that are not essential for summary, quantification, or evaluation of a given record.

2.1 Implementation and Effectiveness Information

The Service will need some basic information about the plan or project entered into the CED to determine if the plan or project has been fully implemented and if it has been demonstrated to be effective in addressing one or more threats. Information on the conservation effort objectives and effectiveness are required for all conservation efforts.

Effort Objectives: In addition to the general project or plan objective(s), the CED is seeking a narrative explanation of how the effort intends to address one or more threat and/or achieve one or more conservation objective either identified in the COT Report or otherwise identified as a threat to sagebrush ecosystems.

For example, a shrub-steppe habitat restoration project may have one or more of the following general objectives:

- Restore key components to enhance habitat quality for sage-grouse.
- Restore native bunchgrasses and forbs to an abundance and density that can increase the resistance of an area to invasives annual grasses.
- Restore productive rangelands that also support a diversity of wildlife.

While the above bulleted statements are valid objectives for restoring or improving habitat, the CED requests that our conservation partners also specify how the achievement of those objectives will help reduce or eliminate a threat. For example, if the effort objective examples above were achieved, how

would they reduce impacts from 'noxious weeds/invasive annual grasses', and/or minimize 'wildfire risk' by reducing invasive annual grasses. Another example is how a conservation easement may not directly improve sagebrush habitats, but it may ensure that the habitat will not be tilled and converted to croplands. It will also be helpful if the narrative information in the 'Objectives' text box explained how the effort would accomplish one of the Conservation Objectives outlined on pages 31-52 of the COT Report if the conservation effort is for sage-grouse, or applies to the species for which the effort is focused.

Effort Effectiveness: The Service is also seeking information on whether the efforts were successful in fulfilling the stated treatment objective(s), and effective in ameliorating or reducing one or more threats to sage grouse. In the CED, three options are available for answering the question: Was the effort effective?

- Yes, the plan or project is already effective.
- Highly Likely, the plan or project is reasonably certain to be effective, given adequate time.
- Uncertain or Unlikely, plan or project is uncertain, or unlikely, to be effective based on current information.

In cases where the effort has been deemed effective, or is highly likely to be effective given enough time, we are seeking narrative information explaining how and why that is the case. If monitoring reports or other supporting documents are available, we encourage those be uploaded in Step 3.

Restoration of shrub-steppe habitat is a process that takes repeated interventions to control weeds and restore diverse species assemblages, allow natives to disperse in from adjacent areas, and achieve compositional and structural objectives. Many variables influence the effectiveness of sagebrush habitat restoration projects, and it takes many years to achieve functional habitat for associated species. Recognizing that few, if any, restoration efforts implemented in recent years may have achieved functional habitat, we encourage partners to report effectiveness based on established incremental objectives and conducted timely monitoring to demonstrate effectiveness for that point in time. An example of incremental objectives and effectiveness include:

- Year 1 Objective: Greater than 80% of all seeded species will be established on site. Cover of seeded bunchgrasses will be greater than 15%. Annual weeds will be less than 5% of total cover. Monitoring indicates these objectives were met.
- Year 3: All seeded species will be established. Bunchgrass cover will be greater than 35%. Annual weeds will be less than 2%. Monitoring was conducted, corrective actions were implemented to treat annual weed coverage, and all Year 3 objectives were met.
- Year 10: Greater than 80% of all species on the reference site species list will be present within the restoration area. Too early to tell, but based on previous years monitoring and corrective actions, Year 10 Objectives are highly likely to be met.

If a project contains multiple actions (or treatments), it may be difficult to evaluate each individual treatment for effectiveness. However, if like treatments are conducted with the same methods, etc., those treatments could be evaluated in the aggregate as objectives may be tied to a larger geographic area. In those cases, we encourage users to group like polygons/efforts for entry into the CED. The requirements for reporting on effectiveness remain, but this provides flexibility based on the monitoring strategy and objectives associated with the effort.

If specific, measurable, time-bound, incremental objectives are not available, other information, such as the bullets listed below, could help explain why the restoration effort is on the correct trajectory to provide functional habitat given adequate time:

- Was the effort part of a broader strategic process that addresses the sagebrush ecosystem as a whole, and that provides explicit rationale for spatial prioritization of best management practices to meet the stated objectives?
- Were established and proved techniques used for soil prep and seeding rates?
- Was periodic weed control provided?
- Was herbivore protection in place?
- Was there adequate precipitation to establish roots and survive the following summer, or was supplemental water provided?
- Was a follow-up monitoring and a corrective action strategy in place, particularly for sites with low precipitation, shallow soils, and/or areas with steep, southwest-facing slopes?
- Were locally-sourced seeds and/or seedlings used in the restoration effort?

The questions used in the CED to elicit implementation and effectiveness information CED are displayed in Figure 3.

Conservation Efforts Database
Implementation and Effectiveness Information

Has the effort been implemented?

- **Yes**
- **No**

Has the effort been deemed effective?

- No
- Too early to tell
- Yes

Is there a high level of certainty that the activity will be implemented?
- Does the implementing party has the legal authority to conduct the activity
- Are financial, staffing, and administrative resources necessary to carry out the conservation effort available
- Are regulatory and/or procedural mechanisms in place to carry out the efforts
- Have all Federal/State/Local legal project compliance requirements been met or are reasonably certain to be met
- If voluntary participation is needed, are incentives adequate to ensure the level of participation necessary to carry out the conservation effort

Provide brief explanation

For actions that have not been deemed effective (e.g. programs/actions only recently implemented), does the action:
- Describe how the conservation effort reduces the threats
- Provide incremental objectives and dates for achieving them
- Provide quantifiable performance measures to monitor both implementation and effectiveness
- Incorporate principles of adaptive management (e.g. a corrective management strategy)

- Yes
- No

EXIT

Figure 3. Implementation and Effectiveness Information

2.2 Plan Information

The goal for long-term conservation of healthy sagebrush habitats (including native perennial grass and forb communities) is achieved by maintaining viable, connected, and well-distributed sagebrush communities through threat amelioration, conservation of key habitats, and restoration activities. Healthy, viable, connected sagebrush ecosystem in turn provides for viable, connected, and well-distributed populations of sagebrush associated species. One of the objectives to achieve this goal is to implement state and federal sagebrush conservation strategies (including but not limited to sage-grouse

conservation strategies and associated incentive-based conservation actions and regulatory mechanisms.

Recognizing that threats can be ameliorated using a variety of tools within the purview of states and federal agencies, including incentive-based conservation actions or regulatory mechanisms, the CED organizes information about planning efforts into two broad categories (Fig. 4).
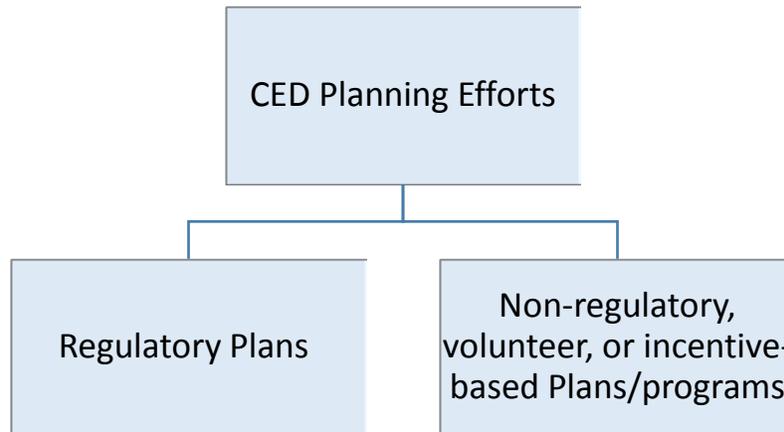
Figure 4. Types of Planning Efforts captured in the CED.

We offer the following guidelines for identifying plans for entry in the CED:

Regulatory Plans: Plans with regulatory authority (e.g., laws, regulations, ordinances) that define land use designations/allocations or control activities that occur in sage-grouse habitat.   Examples include but are not limited to: Federal Land Use Plans, State Management Plans, and County Zoning Ordinances.

Non-regulatory, Volunteer, or Incentive-based Plans: Proactive, voluntary conservation plans that provide a geospatial prioritization, and/or schedule of implementation for practices and activities needed for the long-term conservation healthy sagebrush shrubs and native perennial grass and forb communities and associated species (including sage-grouse).   Examples include, but are not limited to: Programmatic Candidate Conservation Agreements with Assurances (CCAAs), Candidate Conservation Agreements (CCAs), Programmatic Restoration Plans, and Natural Resources Conservation Service Strategic Plans. Incentive-based programs can provide a strategic approach for prioritizing opportunities with landowners.

> Fire Suppression Plans: A mix of land use planning efforts and preparation efforts that could be considered "projects" but for the lack of an on-the-ground component, this planning category is designed to capture the important fire suppression actions such as geospatial plans to prioritize fuels management and habitat recovery/restoration designed to improve sagebrush habitats with greater resistance to invasive annual grasses and/or resilience after disturbances such as wildfires. This category also includes planning efforts such as agreements to share fire response resources, or pre-positioning those resources in advance of wildfires.

When entering planning information in the CED, a narrative explanation of what the plan entails (suggested topics presented below) is required. While not required, we encourage information that describes implementation and why it is/was effective.

2.2.1 Regulatory Mechanisms, Plans, and Policies

2.2.1.0 BLM and USFS Federal Land Use Plans

The Bureau of Land Management (BLM) and the U.S. Forest Service (USFS) have developed 15 Environmental Impact Statements that will inform approximately 98 Land Use Plans.   For the 2015 greater sage-grouse status review, the National Operations Center (NOC) worked closely with the Service and USGS CED Team to upload the geospatial data layers of the land use allocations/designations that are intended to reduce or ameliorate threats to sage-grouse. It is the Service's intent to remain in close coordination with the BLM and USFS to ensure that the most up-to-date land use allocations/designations are included in the CED.

2.2.1.1 Other Federal, State, Tribal, County, and Local Government Conservation Plans

Because Federal, State, Tribal, county, and local governments manage actions to address multiple threats, we encourage these partners to enter a separate record for each threat addressed in their regulatory plans.

We offer the following suggested approach for the threat-specific narratives entered in the CED.

> **Suggested Naming Convention for Plans addressing multiple threats:**
>
> State: Agency: Plan Name:Fire
>
> State: Agency: Plan Name:Mining

- Provide basic information as requested
- Summarize how the plan addresses the suggested objective listed in the COT Report as applicable.
- Summarize policies/regulations/ordinances to prevent/minimize/ameliorate the threat
- Upload relevant documents supporting the summary information provided in Step 2
- Check land ownership boxes as appropriate
- Implementation information (useful, but not required for plans)
    a. Summarize funding source(s) and funding plan
    b. Describe any obstacles to full implementation of the plan
    c. Describe any successes in implementing the plan
    d. Describe implementation plan for the next five years
    e. Describe plans for monitoring [biological] effectiveness
    f. Include any additional information needed to describe the plan

2.2.2 Incentive-based (Non-regulatory) Conservation Strategies

Incentive-based conservation strategies play an important role in the conservation of sagebrush associated species, especially on private lands. Because of their conservation potential, programmatic and/or large scale non-regulatory conservation strategies will be important entries in the CED. Examples include Voluntary Federal, State, NGO, Local and Tribal habitat restoration programs, Programmatic Candidate Conservation Agreements, Programmatic Candidate Conservation Agreements with Assurances, Programmatic Restoration Plans for Invasive Plants, and Programmatic Reclamation Plans.

2.3 Project Information

2.3.1 Mitigation

Mitigation strategies or programs are designed to avoid, minimize, rectify, reduce over time, and compensate impacts to sagebrush habitats and the associated species (i.e. the mitigation hierarchy). Mitigation strategies or programs are typically part of a larger conservation plan or program, and as such, will be captured in the CED as a regulatory mechanism, plan, or policy. Individual project-specific minimization or avoidance measures should not be reported as conservation projects in the CED. However, application of effective minimization and avoidance measures will be important information to demonstrate the effectiveness of conservation plans. Examples of minimization and avoidance measures that are part of a broader conservation plan should be described in Step 5 – Implementation Information for the overall conservation plan.

Individual compensatory mitigation projects can be reported in the CED as project-specific conservation efforts. Consider the following example: a conservation easement is placed on a ranch with high quality sage-grouse habitat, protecting that ranch from fragmentation and development threats in perpetuity as compensatory mitigation for the siting of a new communication tower in general habitat. The conservation easement would be entered in the CED, whereas any applicable minimization measures such as construction timing restrictions, or footprint reduction stipulations for the new communication tower would not be entered in the CED as a specific conservation effort.

2.3.2 Activities, Subactivities, and Metrics

Table 1 provides a list of the quantitative project metrics used in the CED, organized by 'Activity' and 'Subactivity'. A project can only be associated with one activity and one subactivity. In cases where a conservation effort includes several activities and subactivities (e.g., a comprehensive restoration action on a land parcel to decommission an old telecommunication road, revegetate that road, and place a perpetual conservation easement specifically for sage-grouse (or other sagebrush dependent species) on that parcel), the data provider is encouraged to either enter multiple CED effort records (one for each sub-activity or action), or to enter the project for the highest conservation value for the area. Please let the CED Team know if you have multiple projects that include multiple subactivities so we can revisit this if needed.

Not all relevant information will be captured by the metrics associated with each subactivity; therefore, in addition to standardized data fields and metrics, qualitative information will be gathered from text box entries and from supplemental documents that can be uploaded by registered CED users. Narrative reports, plans, monitoring results, and other documents will provide essential context for information provided in standardized format and other valuable information about each conservation effort entered into the CED. This supporting information will be invaluable when evaluating actions for effectiveness. When and where alike actions have taken place in an area, but may be geographically disjointed, users are encouraged to 'lump' actions together as long as they have the same outcomes, and support/justification for effectiveness can be applied similarly across all treatment areas. An example of this would be five conifer removal treatments that occurred in the same project area. If the treatments share the same methodology, habitat objectives, post-treatment monitoring results, and same justification of effectiveness, the 5 separate polygons could be combined into one shapefile, and uploaded as one record as opposed to 5. This bundling is aimed at reduced workload from the perspective of our partners, and may increase efficiencies in the Service's evaluation process.

Table 1. List of spatially-explicit activities, subactivities, and metrics.

ACTIVITY	SUBACTIVITY	PROJECT METRICS	EXAMPLES AND INFORMATION TO INCLUDE (Objectives, Notes, Effectiveness Narrative Boxes)
SAGEBRUSH PROTECTION:	Conservation Easement	Acres in the Agreement Length of agreement • (years, perpetuity) Early termination penalty • (yes/no)	• Long-term or permanent easements such as those provided through the Grassland Reserve Program, Farm and Ranchlands Protection Program, Wetland Reserve Program, and the 2014 Farm Bill Agricultural Conservation Easement Program, or provided through other Federal, State, or NGO programs. • **Please be sure to redact any PII from the information provided.** • Permanent protections such as acquisitions of lands for governmental or NGO programs where the purpose is for sagebrush habitat wildlife dependent species.
	Land Acquisition	Acres	
	Fuel Breaks	Acres of Fuel Break(s)	• Fuel breaks involve removing flammable vegetation in a swath wide enough to prevent a fire from spreading. Roads and natural fuel breaks can sometimes be incorporated into the design. If the project or plan has reduced the threat of wildfire by creating fuel breaks as a habitat protection measure, please provide a summary in which you respond to the following questions: what type of fire break(s) was/were created? What was the reason for the siting/placement of the firebreak? How will the firebreak be maintained?
RESTORATION: Conifer Removal	Conifer Removal (All Phases)	Acres of Treated Area(s)	Projects to remove piñon pine and/or juniper in all phases. • Areas with intact sagebrush and understory vegetation present, shrubs and herbs are the dominant vegetation that influences ecological processes on the site. • Areas where trees are co-dominant with shrubs and herbs and all three vegetation layers influence ecological processes on the site. • Areas where trees are the dominant vegetation and the primary plant layer influencing ecological processes on the site. Selectively conducted to improve connectivity.

RESTORATION: Post-Disturbance and/or Habitat Enhancement	Fuels Management	Acres of Fuels Treated	• Includes projects that are designed to change vegetation composition and/or structure to modify fire behavior characteristics for the purpose of aiding in fire suppression and reducing fire extent. • Conifer removals, which can be considered a fuels treatment, are categorized separately and entered under Conifer Removal (given that not every treatment objective related to conifer cuts are fuels-management driven). However, the process of downed trees and/or slash would be included in this subactivity. May overlap spatial footprint associated with conifer removals.
	Area Closure (Area and/or Seasonal)	Acres	• Acres of areas closed permanently or seasonally in an attempt to prohibit activities or land uses that may contribute to sagebrush habitat loss or degradation.
	Vegetation Management / Habitat Enhancement	Acres of Treated Area(s)	• Acres of projects or treatments aimed at improving existing, intact sagebrush habitats. While many actions are covered specifically, this subactivity allows to capture actions aimed at improving sagebrush habitat as well as actions aimed at improving others aspects of healthy sagebrush ecosystem including but not limited to augmenting canopy coverage, understory species diversity, and managing other shrubs that may contribute to sagebrush habitat loss or degradation.
	Annual Grass Forb or Noxious Weed Treatments	Acres of Treated Area(s)	• Includes projects that are designed to change vegetation composition and/or structure by reducing the presence of invasives annual grasses and/or forbs. Examples of this action would be efforts to remove or reduce cheatgrass or medusahead rye, among other species that degrade understory health.
	Energy development reclamation with the goal of sagebrush restoration	Acres of Reclaimed Area(s)	

Table2. List of non-spatial project activities, subactivities, and metrics.

ACTIVITY	SUBACTIVITY	PROJECT METRICS	EXAMPLES AND INFORMATION TO INCLUDE (Objectives, Notes, Effectiveness Narrative Boxes)
SAGEBRUSH PROTECTION:	Conservation Agreements (including but not limited to: CCAs, CCAAs, Farm Bill and other Incentive-based programs)	Acres Enrolled	• Examples include Voluntary Federal, State, NGO, Local and Tribal habitat restoration programs, Programmatic CCAs, Programmatic CCAAs, Programmatic Restoration Plans for Invasive Plants, and Programmatic Reclamation Plans. Include the conservation effort implemented as part of the agreement as well as reporting on effectiveness monitoring. • **Please be sure to redact any PII from the information provided.**
	Conservation Easements Preventing Subdivision	Acres Enrolled	• Long-term or permanent easements put into place with the specific objective of preventing urban development resulting in sagebrush habitat loss, fragmentation, or degradation. **Please be sure to redact any PII from the information provided.**
RESTORATION: Infrastructure Removal and Modification	Structure Removal	Type of structure removed Amount Removed	• Provide the total number, and type of structures that were removed or moved out of sagebrush habitats. Structures typically include (but may not be limited to): communication towers, cellular towers, abandoned windmills, abandoned buildings, power lines (transmission or distribution), and wind turbines.
	Powerline Burial	Type of powerline Miles of powerline buried	• Miles of power lines (transmission and distribution) buried to reduce impacts to sagebrush dependent species
	Powerline Retrofitting / Modification	Type of Modification Miles of powerline modified	• Miles of power lines (transmission and distribution) modified to reduce impacts to sagebrush dependent species
	Fence Modification	Miles Modified	• Report miles of fence modified (i.e., smooth top wire) in areas with high potential for sage-grouse strikes/collisions documented. Consider including multiple fence marking projects occurring within an area (i.e., population, watershed, county, conservation district) together as opposed to entering multiple records.

	Fence Marking	Miles Marked	• Report miles of fence marked in areas with high potential for sage-grouse strikes/collisions documented. Consider including multiple fence marking projects occurring within an area (i.e., population, watershed, county, conservation district) together as opposed to entering multiple records.
	Fence Removal	Miles Removed	• Report miles of fence removed in areas with high potential for sage-grouse strikes/collisions documented. Consider including multiple fence removal projects occurring within an area (i.e., population, watershed, county, conservation district) together as opposed to entering multiple records.
RESTORATION: Livestock & Rangeland Management	Improved Grazing Practices (Rest, Rotation, Etc.)	Acre (Associated w/ Allotments/Pastures in Practice)	• Enter total acres of rangeland/ranchland being managed according to NRCS Sage-Grouse Initiative grazing practices and range management recommendations OR State or Federal agency recommendations including: o Rotating livestock to different pastures, while resting others to establish a diversity of habitat types. o Changing seasons of use within pastures to ensure all plants have the ability to reproduce. o Leaving residual cover (grass from the past season) to increase hiding and nesting cover for sage-grouse. o Managing the frequency and intensity of grazing to sustain native grasses, wildflowers, and shrubs. o Managing livestock access to water to ensure healthy livestock and healthy o Targeted grazing aimed at reducing fine fuel loads
RESTORATION: Travel Management	Road and Trail closure	Miles	• Miles of road removed, de-commissioned, or rerouted as well as roads/trails that are closed for a defined period of time (while remaining on the landscape) to reduce human activity in an area.
	Rerouted Roads and/or Trails	Miles	
SPECIES MANAGEMENT: Population Augmentation	Translocation	Number of Sage-grouse Translocated	• Include the number of sage-grouse included in translocation effort. Include information about where sage-grouse were moved from, as well as where they are being moved to. Include post-release effectiveness monitoring protocols.

RESTORATION: Feral Equid Management	Feral Equid Population Control	Number Feral Equids Treated	• Number of free-roaming equids treated with population control methods in order to achieve properly functioning condition for riparian areas and/or rangeland health standards for sagebrush communities.
	Feral Equid Gather	Number Feral Equids Gathered/Removed	• Number of free-roaming equids gathered for relocation in order to achieve properly functioning condition for riparian areas and/or rangeland health standards for sagebrush communities.

3.0 HOW WILL DATA IN THE CED BE USED?

The CED was designed to collect information on conservation efforts in an organized and spatially explicit fashion so that we could better understand the full extent to which conservation actions are ameliorating threats to the sagebrush ecosystem. The specifics of how we will quantitatively or qualitatively assess the extent to which threats are ameliorated are currently in development. We are working closely with modeling experts and structured decision making experts to develop a process that fully accounts for the actions in the CED in a transparent and objective manner, and in a way that appropriately accounts for uncertainty. There is potential for the CED to help identify geographic gaps (or concentrations) in conservation efforts to help prioritize future conservation actions. As the CED Team works with our partners to refine how data will be used, Appendix B will be updated to reflect those discussions and describe paths forward.

4.0 REPORTING

The CED has undergone some significant updates from CED v1.0, as it relates to reporting features/functionality. While the CED will retain the functionality to perform queries and generate tabular summaries of the information, you, the user, have provided (or been given access to by the providing party), the CED will now be able to generate a summary of information queried, along with a map illustrating the efforts included, and some simple summary calculations.

While the CED's mission and organization is focused on the sagebrush ecosystem, the CED will calculate zonal statistics based on sage-grouse areas of interest and resource values (in the form of a population index (Doherty et al. 2016) and breeding habitat distribution (Doherty et al. 2016). Additionally, the CED will calculate the different amount of other resource information such as the resistance and resilience (Chambers et al. 2016, 2017).

When generating a report, there is a lag between record entry and when the data is 'available' for display, query, and map calculation. Please keep this in mind if you need a report. The CED Team will work with partners and data providers to keep the CED updated on an annual basis list those dates on reports generated.

5.0 PROJECT SITING

At a broad or regional scale, the CED can be used as a tool to view a variety of conservation efforts aimed at sagebrush habitat improvement and/or threat reduction. By using the CED's Interactive Map, any user can view spatial data entered into the CED as well as query a smaller subset of actions or by geographic area. This will allow the user to strategically site conservation efforts based on proximity to other implemented actions. This approach has the potential to foster a community of collaborative conservation.

Additionally, the CED has added new information in the form of spatial layers that can be displayed in the background of our Interactive Map. This information can provide important context to geographic areas based on resource values, sage-grouse values, and some threats. Some of these layers will also be used to quantify conservation benefit and/or threat reduction as mentioned above in Section 5.0 (Reporting Features).

6.0 INTEROPERABILITY

Various partners either currently have or are developing decision support tools and databases to collect information and provide a mechanism for viewing, analyzing, or downloading that information. It is the goal of the CED to work collaboratively with our partners to increase interoperability between the CED and their respective tools. With that understanding, we hope to reduce the need for duplicate data entry, while still ensuring the collection of all relevant information needed for long term monitoring and evaluations of effectiveness.

The CED will not be able to provide every function needed by our partners. However, the CED can connect with other tools to provide a more complete picture of the landscape, as well as help point users to the tool(s) that best meet their needs. This will be a valuable feature of the CED.

As a part of implementation of the Integrated Rangeland Fire Management Strategy, an interagency team led by the BLM and USGS has created a geospatial data catalog and enhanced data sharing tools on the BLM Landscape Approach Data Portal. This effort provides many of the layers displayed in the CED. The data portal provides access to data layers, map viewers, and analytical tools to support the Strategy. The geospatial data catalog is a curated list of datasets and includes information from BLM, USGS, FWS, and other partners.

Also connected to the Integrated Rangeland Fire Management Strategy, is the development of a Conservation and Restoration (C&R) Strategy. A tool is being developed to provide access to information in the C&R and help inform future proposed management actions at the landscape or regional scales. The tool will tie into the CED to display various suites of conservation information. Additionally, the USGS and BLM are building a complementary tool that will help with prioritizing and siting restoration and habitat improvement projects at the site scale based on a host of characteristics including the success of other treatments with similar characteristics. The CED Team is working with the development of that tool to look for mutually beneficial opportunities.

 The CED team has also worked closely to share information with our state partners to query data from their existing databases including but not limited to the Oregon Watershed Enhancement Board, Utah's Watershed Restoration Initiative, and Wyoming Game and Fish's databases which tracks a host of information not limited to conservation actions.

7.0 ENTERING DATA IN THE CED

This section of the User's Manual is designed to help new and returning CED users register for the website and enter data. Additional resources can be found within the CED Help link (https://conservationefforts.org/sgce/help/) and include help videos, batch upload instructions, and table structure and documentation. Additionally, we have created a separate tab for Frequently Asked

Questions (FAQs), and will continue to update this, as well as include the information in this documents and/or the CED User Guide as appropriate. If you have questions or comments that cannot be answered via the help resources please do not hesitate to contact us.

To reduce confusion, we have included the following definitions here, to guide users through the data upload process. These terms, and others, are included in the Glossary located in Appendix A.
Data terms are defined as follows in the CED:

- Metadata = the who, what, when, where, and how behind the data.   Metadata for individual efforts is captured as the plans are being entered. For example, who=project contact, when=effort start and finish dates, etc.   Metadata will need to be provided during batch uploads of tabular or geospatial data in order to comply with Federal Geographic Data Committee guidelines.
- Attribute data = the information requested in the CED for a conservation plan or project (e.g. activity, sub-activity, threat the effort is intended to help ameliorate, effectiveness information, etc.). For individual efforts, the attribute data is required information to enter the plan or project. When batch uploading tabular or geospatial data, some attribute data may be missing and will need to be provided.

7.1 Individual Plan and Projects

Recognizing the limited resources and working relationships our conservation partners have, we encourage the following prioritization approaches for entering conservation efforts in the CED:

- Large and/or significant efforts that are most relevant to addressing threats to sagebrush within the partners' realm of influence are the highest priority efforts to enter in the CED.
- If partners worked together to develop or implement an on-the-ground project, we suggest that all involved partners create a set of 'business rules' to organize who is reporting the efforts to reduce double counting. There is no one-size-fits-all approach given the varying levels of coordination in each state, however partners are encouraged to work together to determine the most efficient approach for entering projects that were implemented through partnership efforts.
    - o For example, perhaps the partner that provided the majority of the funds or who led the on-the-ground effort serve as the lead and enter the project information into the CED, if practical.
- Consider the merits of consolidating multiple small treatments involving similar activities into one larger project for data entry purposes. This applies to actions in which the CED will not ask for spatially-explicit information. For example, if multiple fence marking efforts have occurred in one targeted area and have the same implementation and effectiveness information, the registered CED user could combine those individual fence marking actions into one project entry for the CED.   This would save time and effort by creating one record/entry that describes the total of the fence marking projects, rather than creating multiple individual lines with repetitive project information for each fence that was marked.

7.2 Batch Uploads

Many conservation partners will find it more efficient to batch upload information from their existing databases rather than entering data for individual projects.   The CED Team will be available to assist with the batch uploading process. The first step will be to contact the CED Team Lead, identified in the 'About CED' page. Users will download a file geodatabase template and append their data to the template. Once loaded in the CED, the database will add these skeleton projects to the CED. Users will then be able to quickly complete remaining data fields using batch entry within the CED website. This is a deviation from the previous batch upload process and is intended to help reduce errors related to the previous batch upload process. This process (Fig. 5) is still being developed and is subject to change at any time.

Figure 5. Batch upload flow diagram

7.3 Geospatial Data

CED documentation and spatial data are housed on the Landscape Conservation Management and Analysis Portal (LC Map), which is built upon ScienceBase, a collaborative scientific data and information management platform. LC Map is managed by the Great Northern Landscape Conservation Cooperative (GNLCC).

Geospatial data can be uploaded directly into ScienceBase as indicated in Appendix A (located under the Help page of the CED). The organizational information provided by agencies and organizations for the CED user registration process will also be used to organize ScienceBase folders for agencies and organizations to post their geospatial data in ScienceBase.

7.4 Getting Started

In order to enter data into the CED, agencies/organizations must first provide information on their agency/organization and office structure for the CED pre-registration process. This step is necessary to ensure the security of the site and of each record entered into the CED. This pre-registration process is used to complete the following security functions:

- Development of the drop down menus for the user profiles
- Identification of one or more "approving officials" or "gatekeepers" to ensure that data providers entering information on behalf of the agency/organization are actually from the agency/organization.
- Designation of one or more "approving officials" to review and approve project and plan records for public viewing and use by the Service. This step allows for quality control for agencies/organizations.
- Determining who has permission to modify conservation efforts for the agency/organization:
  - the data provider that created the project,
  - select employees within the data provider's office, or

o the approving official for that project/plan.

To get started, please visit the Help page at https://conservationefforts.org and follow the instructions for submitting this information. However, if your agency/organization already provided this information in CED v1.0, it will be carried over. If you need to update contacts, and/or approving officials, please follow the procedure described above.

7.4.1 Welcome Page

The CED Team has installed a new Welcome Page which directs users to the various CED features. This is a hub allowing users to login (or logout), enter data (after logging in), explore information about updates and outreach (such as fact sheets and webinars), and access the new Interactive Map directly. Data entry options, along with the query function, will not be accessible to the user until after logging in.

Additionally, we have 2 new features in which state-specific modules can be accessed, and the 'Decision Support Tool and Data Catalog Library' – where users can access an ever growing list of decision support tools developed by Federal agencies as well as our partners. Each tool/catalog listed provides a brief description of what the tool is, how to access it, along with contact information for each. If you see a tool that you would like added to the library, simply contact the CED Team, and we will work with you to get it added.
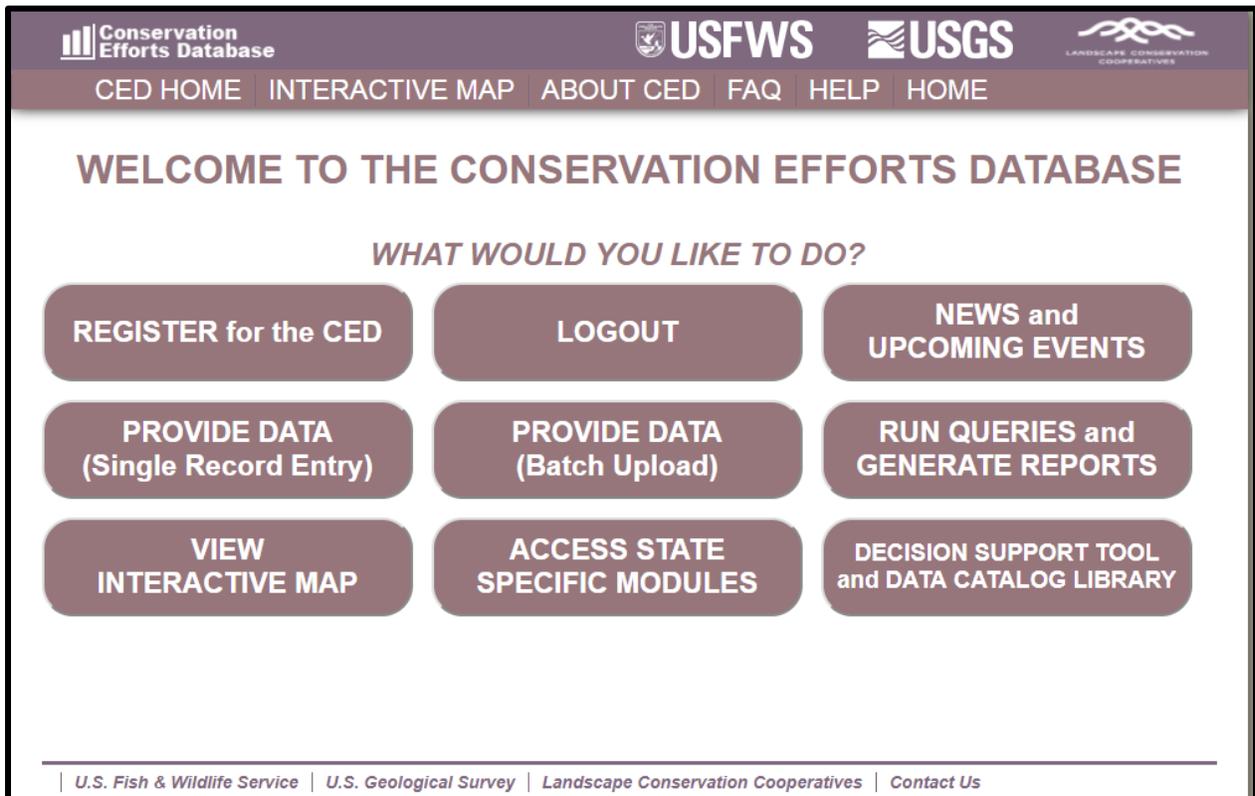
Figure 6. Welcome Page for CED v2.0.0.

7.5 Register for an Account

Once the agency/organization has provided information on organizational structure and approving officials, individual data providers will be able to register for an account. To register for an account, go to https://conservationefforts.org/sgce/accounts/register/, or select the "**REGSITER for the CED**" button (Fig. 6), which should bring you to the following page (Fig 7.):

Figure 7. Example registration page.

Proceed by entering your information, and click 'Submit Registration' (Fig. 7). You will receive an email within several minutes, containing a link that will allow you to activate your account. Once your account has been activated, proceed to the next step to enter your profile information.

7.6 Enter Profile Information

When you log in for the first time, you will automatically be directed to the 'Main Page' where you will be asked to provide your contact information (see screenshot below). Fill out all required fields marked with an asterisk (*). Approving officials should have already been designated for your agency/organization, and will appear in a drop-down menu once your agency/organization or office is selected. If you don't see an approving official, please contact your agency lead for the CED. If you don't know who that is, contact the CED team fw1sagegrouseced@fws.gov for assistance. In addition, if you do not see your office within the drop down list you can select DEMONSTRATION USER ACCESS ONLY. Lief Wiechman will automatically be given as your approving official. Records entered in this

test capacity can be converted from test records to real records when your profile information is updated. Please contact the CED Team for further assistance with this step.

All data providers must accept the Terms of the agreement in order to be able to enter your conservation efforts into the CED. Click 'Email Approving Official' to request access from your approving official to enter data for your agency/organization. You cannot enter data until your agency/organization's approving official has authorized you to do so. You will receive an auto-generated email when that has occurred.

Figure 8. Example profile page.

** IMPORTANT NOTE FOR REGISTERED USERS: From this point forward in this document, many hyperlinks will NOT take you to the desired page <u>unless you are logged-in to the CED</u>. Please login to the CED to gain access to all of the document's assistance features. Additionally, you may want to set your default browser to Google Chrome to ensure full functionality. **

7.7 Create a New Project/Plan

You must be logged in to enter data (*go to:* https://conservationefforts.org/sgce/). After logging in, select the 'ENTER DATA' button on the Welcome Page (Fig. 6) or from your user drop-down menu (red arrow; Fig. 9). To enter a new conservation effort (project or plan) select 'Create New Project.' See Entering a Conservation Effort for further instructions.

Figure 9. Example data entry page.

7.8 Entering a Conservation Effort

In this section, we will guide you creating a record/entry for each of the 3 types of information being collected in CED v2.0.0, 'Plans', 'Non-Spatial Projects', and 'Spatial Projects'. Many of the steps will be similar for each entry type; however the plans and non-spatial projects will not contain the spatial data upload steps.

7.8.1 SPATIAL PROJECTS

Step 1: Conservation Effort Name & Completion Status

Indicate the name of the conservation effort (in this case, the name of the project) using fewer than 50 characters. Effort (plan or project) names cannot be duplicated within the CED. Useful tips for a unique name include an effort name (often a geographical landmark), implementing agency, the type of effort, and the year the effort began (**Example:** *Idaho-BLM-Soda Fire Restoration-2016*). While we understand many users will agency-specific naming conventions, we prefer to avoid strictly numeric names for each record.

Select an Effort Type, Activity, and Subactivity (in that order). Choosing these fields will cause display the appropriate metrics and potentially other fields that need to be completed based on your Subactivity selection. The 'Implementing Party' and 'Office' fields will be autopopulated based on the individual's profile that is entering the record. The 'Date created' field will be autopopulated as well.

Not all projects will require spatially-explicit data. For a complete list of which projects will require spatially-explicit data, refer to Table 1.

Figure 10. Example record entry page.

Select an Implementation Status. Those efforts that are "In Progress" have been only partially implemented and have not been completed. A conservation effort that would be considered "Completed" no longer requires further actions aside from post-treatment monitoring (effectiveness monitoring), or maintenance. The Implementing Party, Office, and Date created fields are automatically filled using information from your user profile. While users can edit these fields if necessary, we recommend using the default settings.

A unique conservation effort Project ID number will be assigned for each record (plan or project) entered in the CED and is viewable in the leftmost column on the "User's CED HOME" page (you must be logged in to view) in the list of "My projects". You will see above the 'Save and Continue' button, a notice that will state "*You are creating a Spatial Project. Spatial data is required*".

 Click '**Save and Continue**' to proceed to the next page. This will advance you to the ScienceBase footprint editor.
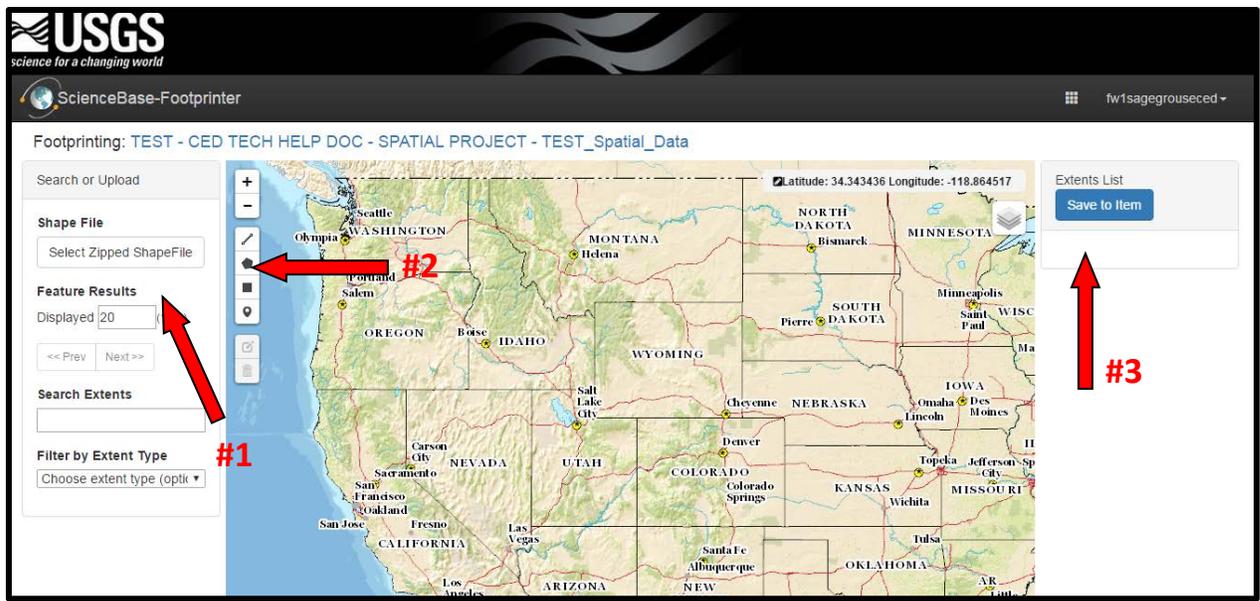
Figure 11. Footprint editor.

Footprint Editor – Spatial Data Upload and Digitizing

The CED will then redirect you to the USGS's ScienceBase's Footprinter (Fig. 11). This the step in which a user can either upload existing spatial information in the form a shapefile, or use this tool to hand-digitize the project's boundary. Keep in mind, hand-digitizing may result in inaccuracies in GIS calculations that will have to be addressed in a later step.

To upload existing shapefiles, select the "**Select Zipped ShapeFile**" button (red arrow #1; Fig. 11). This will open a file browser where you can search and select which file to load. To hand digitize, select one of the tools along the left side of the map (red arrow #2; Fig. 11). If using the digitizing tool, a user can zoom in, to more accurately digitize. Furthermore, after a polygon is complete, a few open (Delete, Zoom to Extent, Add Information) will appear below the "Save to Item" button. Explore the functionality of each of these features to best represent the project polygon. The CED will no longer collect line information, and in most cases will not collect point-data. Regardless of the option you select, when the appropriate file has been loaded or the digitizing is complete, select "**Save to Item**" in the upper right hand corner (red arrow #3; Fig. 11). Select "**Yes, save**" to save and upload the spatial files you have digitized or uploaded to proceed. If at any point, you'd like to return to the CED, you can select the cancel button. You will have an opportunity to edit spatial data prior to submitting your information.
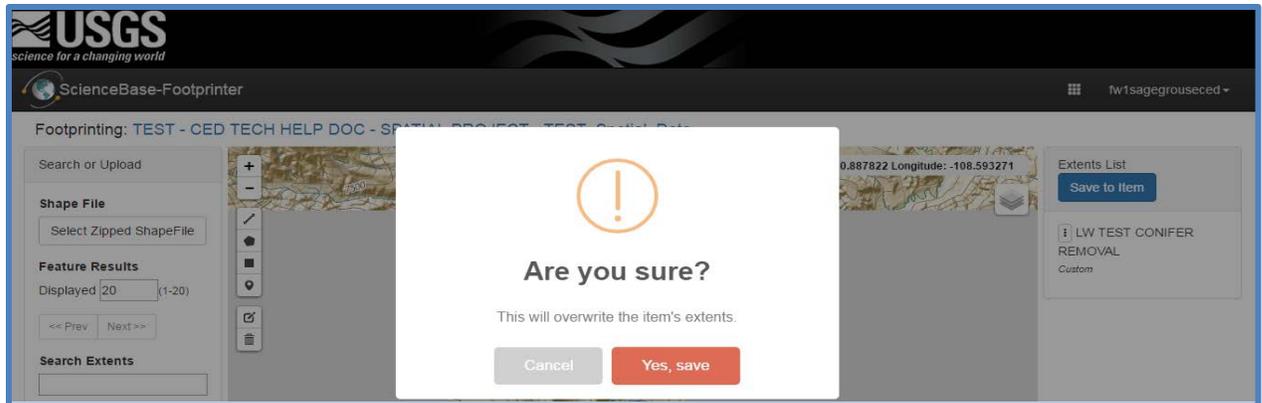
Figure 12. Example footprint editor confirmation page.

After you save, you will have the option to return to the footprinter to edit or add new features or return back to CED record entry. When you return to the CED, you will be brought to Step 2. Later, in Step 4, you will notice that the CED has calculated the acreage associated with the spatial file(s) provided. The CED will also provide a warning when GIS-calculated acreages are different from the "Acres Treated" which is provided by the user. You can see an example of that warning message below. In this case the user entered 350 acres, while the GIS-calculated acreage totaled 386.2.

Step 2: Location Information

A small map illustrating the spatial data uploaded (or digitized) will appear at the top of this page (Fig. 12). The Western Association of Fish and Wildlife Agencies (WAFWA) Zones, Sage-grouse Populations, States, Counties, and Hydrologic Unit Code (HUC) 12 Zone fields will be automatically populated based on the spatial information entered prior to Step 2. The process applied to automatically select the boxes in each of these fields uses GIS layers from our database.
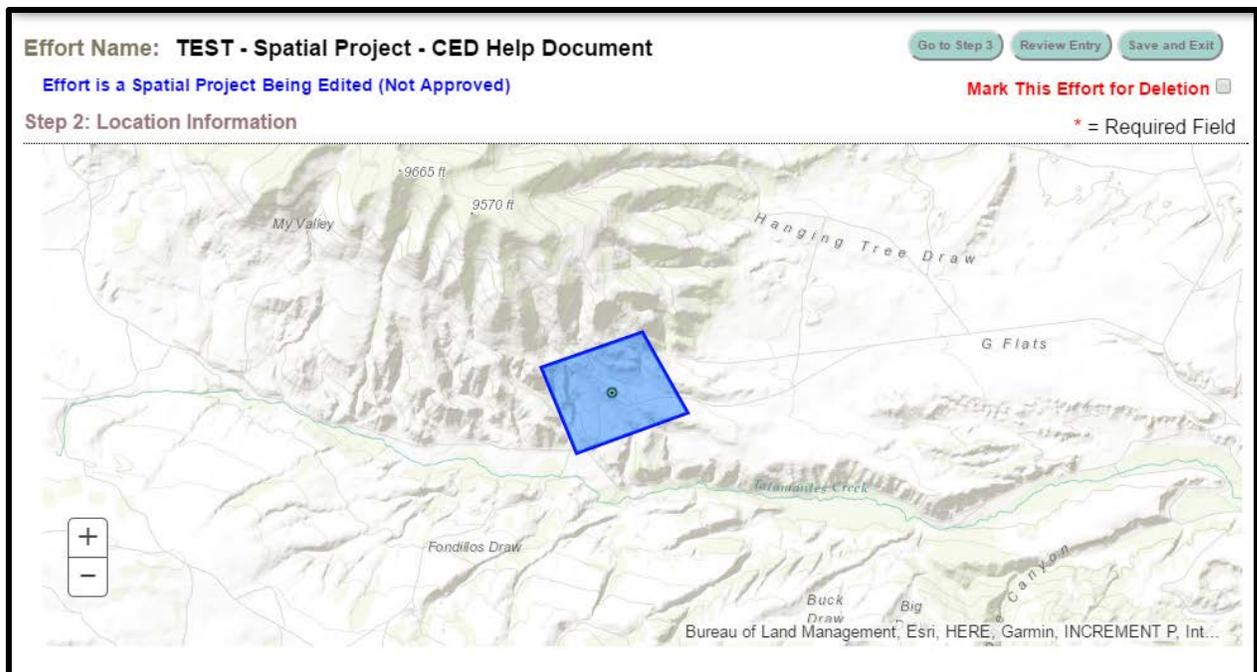
Figure 13. Example record map page.

To reduce the processing time, only the parts of these zones that intersect with the extent of the sagebrush biome are included in our layers. If your spatial polygon's perimeter falls outside of sagebrush distribution, it is possible that some spatial data (e.g., a state) might be included while others (e.g., HUC 12) are missed. Please verify that all of the correct locations are checked. If some location information remains unchecked, please ensure that the spatial data you have entered is in the correct location. If the spatial data you have entered is not in error, please email the CED team at fw1sagegrouseced@fws.gov as you will not be able to pass the error check without all location information fields completed.

This is the step in which you will select any collaborating partners who were involved in the effort. This is a way to include all collaborating parties within a single effort while reducing duplicate reporting. This does require effective communication and coordination with your partners to reduce the risk of double reporting.

The 'Ownership' checklist will NOT be automatically populated (Fig. 14). Select the appropriate land owners that correspond with your conservation area.

Figure 14. Land ownership options.

To proceed to Step 3, click on "**Go to Step 3**".

Step 3: Implementation and Effectiveness Information

The implementation status selected earlier will carryover and automatically populate Question 1 of Part 1 (Fig. 15). Please verify that it is correct before continuing. If an error was made, the user can correct the implementation status in Part 1, Question 1. Fill in your response to the Question 2. If your conservation effort was considered effective, you will need to explain why in Question 2.

Figure 15. Example implementation and effectiveness page.

Please read through the questions in Part 2 and select the appropriate response for your conservation effort. Part 2 is required if the effort implementation status is "In-Progress" (Fig. 16). Part 2 is required if the effort is highly likely to be effective, but has not been in place long enough to determine, or if the effort is unlikely to be considered effective in Part 1.

Figure 16. Example implementation and effectiveness page.

Step 4: Activity Information

Complete all of the available fields. You will have the option to provide any 'notes' you would like to at this stage (Fig. 17), but please keep in mind this is not the only opportunity to provide supplemental information associated with your plane entry; we'll address that in this step.

Figure 17. Example activity information page.

Documentation

This is your opportunity to upload supporting documentation. Supporting documents are

required to provide context and/or validation for the conservation effort (plan or project), specifically identifying the monitoring protocols and any information describing how a project is being or was implemented. Documents such as progress reports published/peer-reviewed journal articles, effectiveness monitoring reports, and other written products can be useful to better explain the project's objective(s), or scope of the conservation project or plan, or explain how any decision or regulation are demonstrating or have demonstrated related effectiveness.

Select files you wish to upload by clicking the '**Choose Files**' button (Fig. 18).

Figure 18. Uploading documents (1/3).

A window will pop open that will allow you to navigate to your supporting documents. Please wait for your files to upload and **do not click the back or forward buttons**. Multiple files can be uploaded by using the 'Crtl' and 'Shift' commands. Once you have selected your files, click 'Open' to close the window. After you have selected your files to be uploaded, the "Upload" button should appear (red arrow; Fig. 18). Select the Upload button (a small box will appear while your file(s) load).
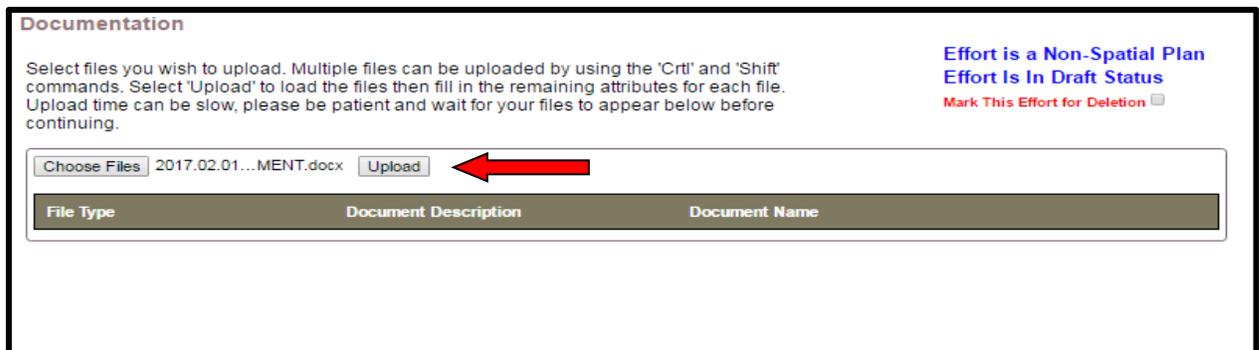
Figure 19. Uploading documents (2/3).

After the file(s) load, select a file type for each (red arrow #1; Fig. 20), and provide a brief description of the document (red arrow #2; Fig. 20). To download the uploaded document(s) during review or when an approving official is approving, select the "Download" button (red arrow #3; Fig. 20).
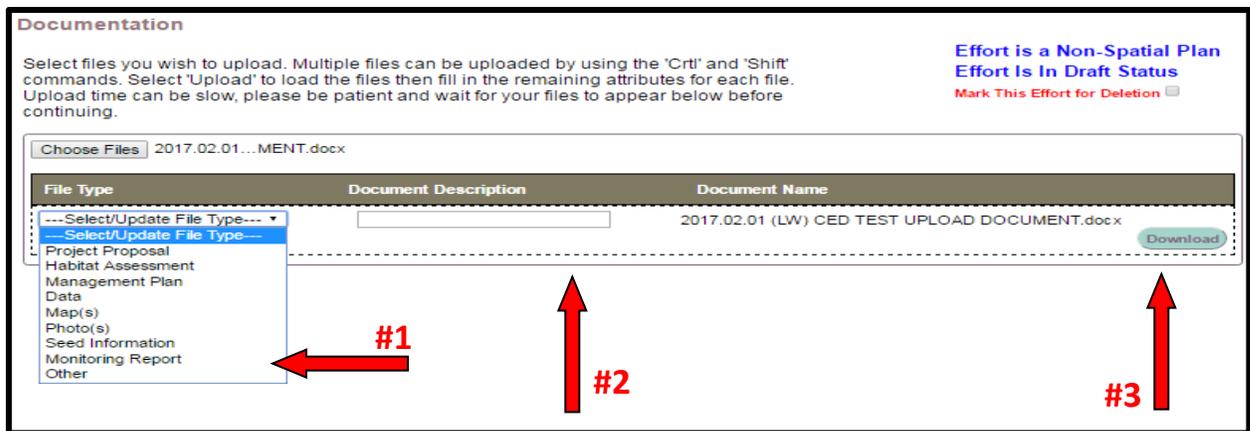
Figure 20. Uploading documents (3/3).

Select the "**Go To Review**" button (upper right corner). This will advance you to the last page for review of the entry prior to officially submitting for evaluation (and related features, such as summarizing information in a query or report, and the ability to view the record on the map).

You may select any threats that your project addresses in this step. Please keep in mind, that each threat selected will create a narrative box below. Those boxes must be populated with the appropriate information or you will not be allowed to advance. This is an imperative step as the information provided here (as well as in Step 3) will be used for evaluation of effectiveness, should the information be assessed for any purpose (such as a future greater sage-grouse status review, for example).
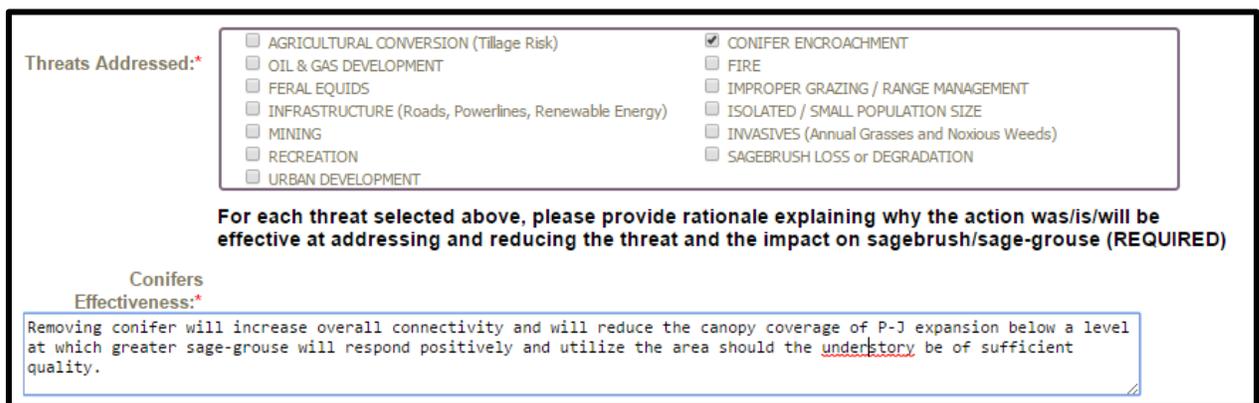
Figure 21. Example effectiveness information.

To proceed to Step 5, click on "**Go to Step 5**" (see arrow #1; Fig. 22). If you would like to stop (or pause) entering information for this record, click on "Save and Exit" (see arrow #2; Fig. 22) and your progress will be saved. You will be able to return to this step by logging in and 'View My Projects' under the User's CED HOME tab at the top of the screen. You may at any time review your data to ensure that all of the required fields have been properly completed by clicking the 'Review Entry' button near the top (right) of the screen (see arrow #3; Fig. 22).

Figure 22. Record review, save, exit options.

IMPORTANT NOTE: To navigate the Edit Project page, you may click any of the buttons across the top of the page to quickly go from one step to another. Any changes you make to the steps as you navigate back and forth will be automatically saved, but ONLY TEMPORARILY. You must click 'Save and Exit' before leaving the site to save the information you have entered (arrow #2; Fig. 22). **Closing your browser window or using the 'Back' button on your browser without first clicking 'Save and Exit' will result in loss of entered data.** The site will warn you of any attempt to leave the data entry page without first saving so that you can return to the page without losing any data.

Step 5: Review and Submit Your Conservation Effort
Review the information you provided. Please note that fields with an asterisk are required and if left unpopulated, the CED will not allow the record to be submitted.

Figure 23. Example record review.

This provides an opportunity to scroll and review all of the information provided as well as quickly jumping to any step, by selecting the corresponding buttons (Fig. 23). In the upper right corner, there is a red box highlighting the options to proceed, as well as some reminder statements that have been in every step. Please use the "**Back to Step 'X'** " button, rather than your browsers back/forward button to navigate the steps in the record. You can "Save and Exit" at any step if there is an issue. If the page freezes or a button does not appear, please contact us immediately so we may find and repair that bug. Select the "Save and Submit for Approval" button when the review is complete. The CED will then send the Approving Official identified in the User's Profile, notifying them there is a record (plan or project) that is ready for their review and submission to be added to the database. Again, this will allow for those records to be illustrated on the interactive map, be subject to query/filter, and some activities will be calculated against risk and resources layers for reporting purposes.

7.8.2 NON-SPATIAL PROJECTS

Step 1: Conservation Effort Name & Completion Status
Indicate the name of the conservation effort (in this case, the name of the project) using fewer than 50 characters. Effort (plan or project) names cannot be duplicated within the CED. Useful tips for a unique name include an effort name (often a geographical landmark), implementing agency, the type of effort, and the year the effort began (**Example:** *Idaho-BLM-Soda Fire Restoration-2016*). While we understand many users will agency-specific naming conventions, we prefer to avoid strictly numeric names for each record.

Select an Effort Type, Activity, and Subactivity (in that order). Choosing these fields will cause display the appropriate metrics and potentially other fields that need to be completed based on your Subactivity selection. The 'Implementing Party' and 'Office' fields will be autopopulated based on the individual's profile that is entering the record. The 'Date created' field will be autopopulated as well.

Not all projects will require spatially-explicit data. For a complete list of which projects will not require spatially-explicit data, refer to Table 2.

Figure 24. Example record entry page.

Select an implementation status for the effort. "Planned" status is for conservation efforts have not been implemented in any way. Those efforts that are "In Progress" have been only partially implemented and have not been completed. A conservation effort that would be considered "Completed" no longer requires further actions aside from post-treatment monitoring (effectiveness monitoring), or maintenance. Projects may fall into any category, however if the project is not completed, please ensure information is provided as to why the project will (if planned) or is trending towards being effective.

If you do not see a subactivity that accurately represents the project you are attempting to enter, please contact the CED Team at fw1sagegrouseced@fws.gov, and we will work with you to find or create the appropriate space for your effort.

A unique conservation effort Project ID number will be assigned for each record (plan or project) entered in the CED and is viewable in the leftmost column on the "User's CED HOME" page (you must be logged in to view) in the list of "My projects". You will see above the 'Save and Continue' button, a notice that will state "*You are creating a Non-Spatial Project. You can only load spatial data as .pdf maps in documentation*". As a reminder, the CED will not be collection spatial data for all records as it has done in the past.

Click '**Save and Continue**' to proceed to the next page, which should look similar to Figure 25.

Figure 25. Example non-spatial activity information page.

Step 2: Location Information

For records/entries that require spatially-explicit information, the CED will use that information to autopopulate the location information. Because the CED will not be collecting spatially-explicit information for plans, the user will select the associated geographic units for summarization purposes.

Figure 26. Example location information page.

Select each state and county where the treatment is located. If known, select all of the corresponding land ownership where the project covers or will cover. This is also your opportunity to identify any collaborators for the effort. Collaborators can be from a funding or implementation stand point. We encourage users to include this information in the project summaries uploaded in Step 4. You will see a red box in the screenshot above highlighting the "**Go to Step 3**" button. This will advance you to Step 3, where answers are provided to questions related to implementation and effectiveness of the effort.

Step 3: Implementation and Effectiveness Information
The implementation status selected earlier will carryover and automatically populate Question 1 of Part 1 (Fig. 27). Please verify that it is correct before continuing. If an error was made, the user can correct the implementation status in Part 1, Question 1. Fill in your response to the Question 2. If your conservation effort was considered effective, you will need to explain why in Question 2.

Figure 27. Example implementation and effectiveness page.

Please read through the questions in Part 2 and select the appropriate response for your conservation effort. Part 2 is required if the effort implementation status is not "Completed". Part 2 is required if the effort is highly likely to be effective, but has not been in place long enough to determine, or if the effort is unlikely to be considered effective in Part 1.

Figure 28. Example implementation and effectiveness page.

To proceed to Step 4, click on "**Go to Step 4**".

Step 4: Activity Information

Complete all of the available fields. You will have the option to provide any 'notes' you would

like to at this stage, but please keep in mind this is not the only opportunity to provide supplemental information associated with your plane entry; we'll address that in this step.

You may select any threats that your project addresses in Step 4. Please keep in mind, that each threat selected will create a narrative box below. Those boxes must be populated with the appropriate information or you will not be allowed to advance. This is an imperative step as the information provided here will be used for evaluation of effectiveness, should the information be assessed for any purpose (such as the 2020 greater sage-grouse status review, for example).

IMPORTANT NOTE: To navigate the Edit Project page, you may click any of the buttons across the top of the page to quickly go from one step to another. Any changes you make to the steps as you navigate back and forth will be automatically saved, but ONLY TEMPORARILY. **You must click 'Save and Exit' before leaving the site to save the information you have entered (see screenshot below). Closing your browser window or using the 'Back' button on your browser without first clicking 'Save and Exit' will result in loss of entered data.** The site will warn you of any attempt to leave the data entry page without first saving so that you can return to the page without losing any data.

Documentation

This is your opportunity to upload supporting documentation. Supporting documents are required to provide context and/or validation for the conservation effort (plan or project), specifically identifying the monitoring protocols and any information describing how a project is being or was implemented. Documents such as progress reports published/peer-reviewed journal articles, effectiveness monitoring reports, and other written products can be useful to better explain the project's objective(s), or scope of the conservation project or plan, or explain how any decision or regulation are demonstrating or have demonstrated related effectiveness.

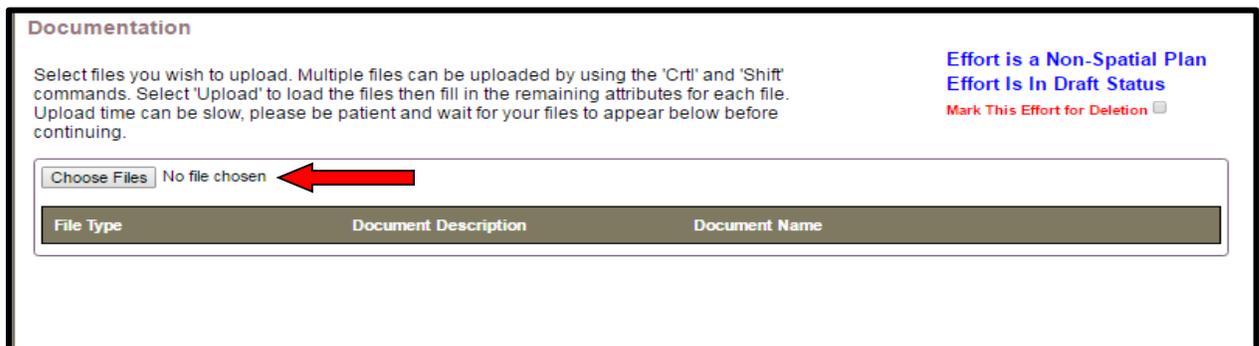Select files you wish to upload by clicking the 'Choose Files' button (Fig. 29).

Figure 29. Uploading documents (1/3).

A window will pop open that will allow you to navigate to your supporting documents. Please wait for your files to upload and **do not click the back or forward buttons**. Multiple files can be uploaded by using the 'Crtl' and 'Shift' commands. Once you have selected your files, click 'Open' to close the window. After you have selected your files to be uploaded, the "Upload" button should appear (Fig. 30). Select the Upload button (a small box will appear while your file(s) load).
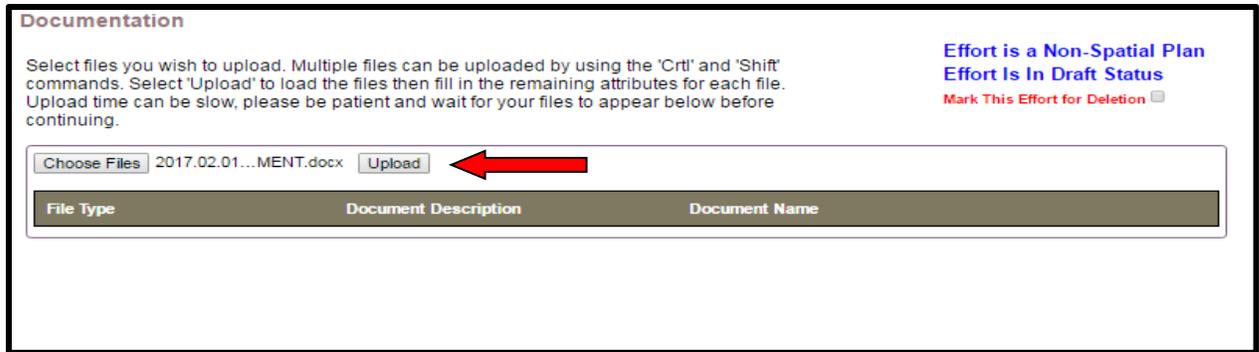
Figure 30. Uploading documents (2/3).

After the file(s) load, select a file type for each (red arrow #1; Fig 31), and provide a brief description of the document (red arrow #2; Fig 31). To download the uploaded document(s) during review or when an approving official is approving, select the "Download" button (red arrow #3; Fig 31).
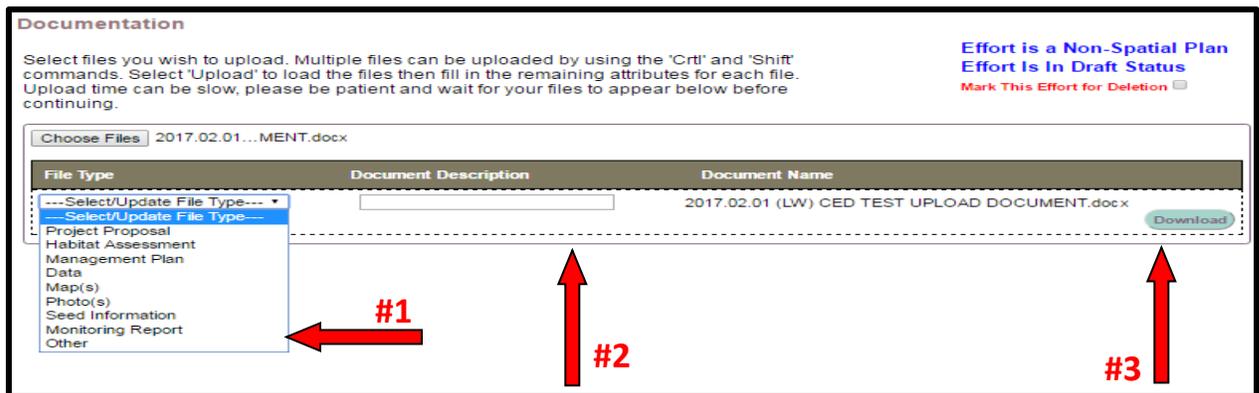

Figure 31. Uploading documents (3/3).

Select the "**Go To Review**" button (upper right corner). This will advance you to the last page for review of the entry prior to officially submitting for evaluation (and related features, such as summarizing information in a query or report, and the ability to view the record on the map).

Step 5: Review and Submit Your Conservation Effort
Review the information you provided. Please note that fields with an asterisk are required and if left unpopulated, the CED will not allow the record to be submitted.

Figure 32. Example record review.

This provides an opportunity to scroll and review all of the information provided as well as quickly jumping to any step, but selecting the corresponding buttons. In the upper right corner, there is a red box highlighting the options to proceed, as well as some reminder statements that have been in every step. Please use the "**Back to Step 4**" button (Fig. 32), rather than your browsers back/forward button to navigate the steps in the record. You can "Save and Exit" at any step if there is an issue (Fig. 32). If the page freezes or a button does not appear, please contact us immediately so we may find and repair that bug. Select the "Save and Submit for Approval" button when the review is complete. The CED will then send the Approving Official identified in the User's Profile, notifying them there is a record (plan or project) that is ready for their review and submission to be

added to the database. Again, this will allow for those records to be illustrated on the interactive map, be subject to query/filter, and some activities will be calculated against risk and resources layers for reporting purposes.

7.8.3 PLANS

Step 1: Conservation Effort Name & Completion Status

Indicate the name of the conservation effort (in this case, the name of the plan) using fewer than 50 characters. Plan names cannot be duplicated within the CED. Useful tips for a unique name include an effort name (often a geographical landmark), implementing agency, the type of effort, and the year the effort began (**Example:** *Idaho-BLM-Soda Fire Restoration-2016*). While we understand many users will agency-specific naming conventions, we prefer to avoid strictly numeric names for each record.

Select an Effort Type, Activity, and Subactivity (in that order). Choosing these fields will cause display the appropriate metrics and potentially other fields that need to be completed based on your Subactivity selection. The 'Implementing Party' and 'Office' fields will be autopopulated based on the individual's profile that is entering the record. The 'Date created' field will be autopopulated as well.

Figure 33. Figure 10. Example record entry page.

Select an Implementation Status. Those efforts that are "In Progress" have been only partially implemented and have not been completed. A conservation plan that would be considered

"Completed" would be fully implemented. Through that rationale, most 'plans' will have a status of "In Progress" until they have been fully implemented.

You can select either of the activities relating to 'plans' to peruse the available subactivities nested within each activity. If you do not see a subactivity that accurately represents the plan you are attempting to enter, please contact the CED Team at fw1sagegrouseced@fws.gov, and we will work with you to find or create the appropriate space for your effort.

A unique conservation effort Project ID number will be assigned for each record (plan or project) entered in the CED and is viewable in the leftmost column on the "User's CED HOME" page (you must be logged in to view) in the list of "My projects". You will see above the 'Save and Continue' button, a notice that will state "*You are creating a Non-Spatial Plan. You can only load spatial data as pdf maps in documentation*". As a reminder, the CED will not be collection spatial data for all records as it has done in the past. For 'plans' and a subset of the 'projects' the CED will obtain relative location information by allowing the user to select from a pre-determined set of options.

Click '**Save and Continue**' to proceed to the next page, which should look similar to Fig. 34.

Figure 34. Example location information page.

Step 2: Location Information

For records/entries that require spatially-explicit information, the CED will use that information to autopopulate the location information. Because the CED will not be collecting spatially-explicit

information for plans, the user will select the associated geographic units for summarization purposes.

Select each state and county where the treatment is located. If known, select all of the corresponding land ownership where the project covers or will cover. This is also your opportunity to identify any collaborators for the effort. Collaborators can be from a funding or implementation stand point. We encourage users to include this information in the project summaries uploaded in Step 4. You will see a red box in the screenshot above highlighting the "**Go to Step 3**" button. This will advance you to Step 3, where answers are provided to questions related to implementation and effectiveness of the effort.

Step 3: Implementation and Effectiveness Information

The implementation status selected earlier will carryover and automatically populate Question 1 of Part 1 (Fig. 35). Please verify that it is correct before continuing. If an error was made, the user can correct the implementation status in Part 1, Question 1. Fill in your response to the Question 2. If your conservation effort was considered effective, you will need to explain why in Question 2.

Figure 35. Example implementation and effectiveness page.

Please read through the questions in Part 2 and select the appropriate response for your conservation effort. Part 2 is required if the effort implementation status is not "Completed". Part 2 is required if the effort is highly likely to be effective, but has not been in place long enough to determine, or if the effort is unlikely to be considered effective in Part 1.

Figure 36. Example implementation and effectiveness page.

To proceed to Step 4, click on "**Go to Step 4**".

Step 4: Activity Information

Complete all of the available fields. You will have the option to provide any 'notes' you would like to at this stage, but please keep in mind this is not the only opportunity to provide supplemental information associated with your plane entry; we'll address that in this step.

You may select any threats that your project addresses in Step 4. Please keep in mind, that each threat selected will create a narrative box below. Those boxes must be populated with the appropriate information or you will not be allowed to advance. This is an imperative step as the information provided here will be used for evaluation of effectiveness, should the information be assessed for any purpose (such as the 2020 greater sage-grouse status review, for example).

IMPORTANT NOTE: To navigate the Edit Project page, you may click any of the buttons across the top of the page to quickly go from one step to another. Any changes you make to the steps as you navigate back and forth will be automatically saved, but ONLY TEMPORARILY. **You must click 'Save and Exit' before leaving the site to save the information you have entered (see screenshot below). Closing your browser window or using the 'Back' button on your browser without first clicking 'Save and Exit' will result in loss of entered data.** The site will warn you of any attempt to leave the data entry page without first saving so that you can return to the page without losing any data.

IMPORTANT NOTE: To navigate the Edit Project page, you may click any of the buttons across the top of the page to quickly go from one step to another. Any changes you make to the steps as you navigate back and forth will be automatically saved, but ONLY TEMPORARILY. **You must click 'Save and Exit' before leaving the site to save the information you have entered (see screenshot below). Closing your browser window or using the 'Back' button on your browser without first clicking 'Save and Exit' will result in loss of entered data.** The site will warn you of any attempt to leave the data entry page without first saving so that you can return to the page without losing any data.

Documentation

This is your opportunity to upload supporting documentation. Supporting documents are required to provide context and/or validation for the conservation effort (plan), specifically identifying the monitoring protocols and any information describing how a plan is being or was implemented. Documents such as progress reports published/peer-reviewed journal articles, effectiveness monitoring reports, and other written products can be useful to better explain the plan's objective(s), or scope of the conservation project or plan, or explain how any decision or regulation are demonstrating or have demonstrated related effectiveness.

Select files you wish to upload by clicking the 'Choose Files' button (Fig. 37).
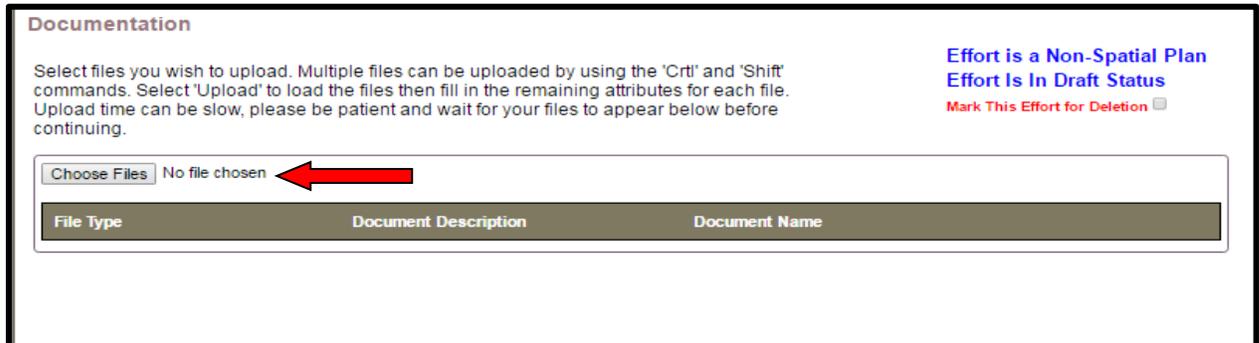
Figure 37. Uploading documents (1/3).

A window will pop open that will allow you to navigate to your supporting documents. Please wait for your files to upload and **do not click the back or forward buttons**. Multiple files can be uploaded by using the 'Crtl' and 'Shift' commands. Once you have selected your files, click 'Open' to close the window. After you have selected your files to be uploaded, the "Upload" button should appear (Fig. 38). Select the Upload button (a small box will appear while your file(s) load).
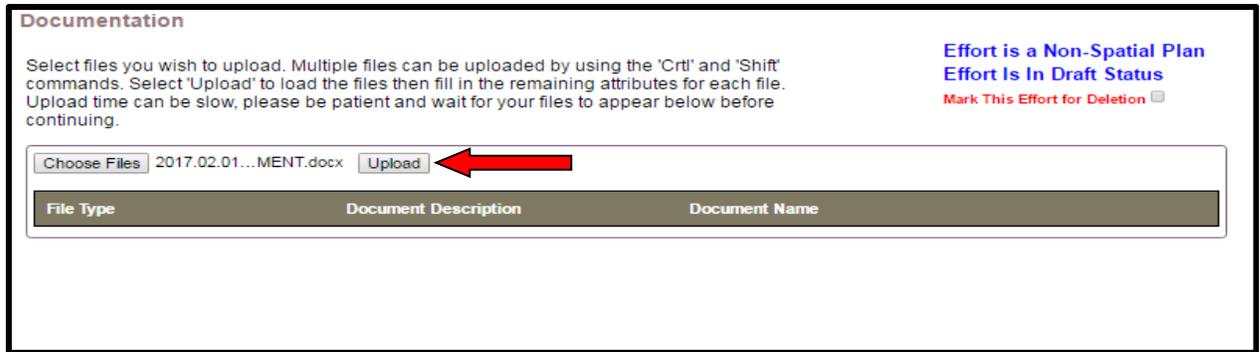
Figure 38. Uploading documents (2/3).

After the file(s) load, select a file type for each (red arrow #1; Fig. 39), and provide a brief description of the document (red arrow #2; Fig. 39). To download the uploaded document(s) during review or when an approving official is approving, select the "Download" button (red arrow #3; Fig. 39).
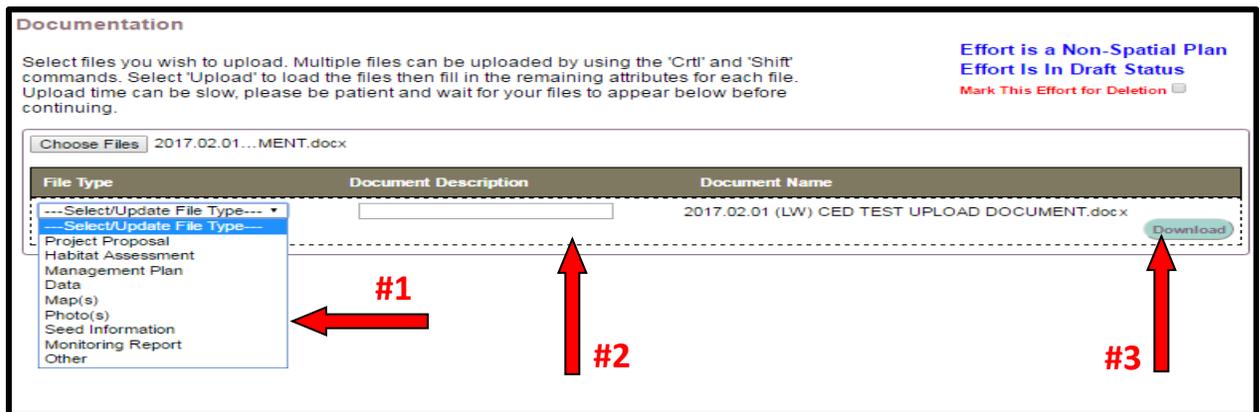
Figure 39. Figure 20. Uploading documents (3/3).

To proceed to Step 5, click on "**Go to Step 5**".

Step 5: Review and Submit Your Conservation Effort

Review the information you provided. Please note that fields with an asterisk are required and if left unpopulated, the CED will not allow the record to be submitted.

Figure 40. Example record review.

This provides an opportunity to scroll and review all of the information provided as well as quickly jumping to any step, but selecting the corresponding buttons (Fig. 40). In the upper right corner, there is a red box highlighting the options to proceed, as well as some reminder statements that have been in every step. Please use the "Back to Step 3" button, rather than your browsers back/forward button to navigate the steps in the record. You can "Save and Exit" at any step if there is an issue. If the page freezes or a button does not appear, please contact us immediately so we may find and repair that bug. Select the "Save and Submit for Approval" button when the review is complete. The CED will then send the Approving Official identified in the User's Profile, notifying

them there is a record (plan or project) that is ready for their review and submission to be added to the database. Again, this will allow for those records to be illustrated on the interactive map, be subject to query/filter, and some activities will be calculated against risk and resources layers for reporting purposes.

8.0 NEXT STEPS

You will receive an email when your submitted project or plan has been successfully approved (by the 'Approving Official'. When you return to the 'View My Projects' page (https://conservationefforts.org/sgce/viewprojects/), you will notice that the 'Entry Type' code in the last column will be "3" for your approved conservation project or plan. Once you see that '3', congratulations! You've successfully submitted a conservation effort to the Sage Grouse CED.

If your project or plan was not approved, you will need to communicate and coordinate with the approving official in your respective agency/organization to make the necessary revisions, and resubmit the project or plan for approval.

9.0 VIEW AND EDIT A PROJECT/PLAN

Visit the 'View my Projects' page at https://conservationefforts.org/sgce/viewprojects/ to select a conservation effort for editing. Click the name to open the project or plan. When logged into the CED, this menu option will be on the data entry menu.

10.0 DELETE A PROJECT/PLAN

While entering your project data, you will notice small red text near the top of the page that says 'Mark this Effort for Deletion' (Fig. 41). Check the box to next to the red text and click 'Save and Exit.' An email will be sent to your approving official. The approving official can select 'Approve' to submit a CED effort to the CED administrators for final deletion.

Figure 41. Example for deleting a record

11.0 BATCH UPLOAD

The CED has the ability to query from and upload existing datasets in bulk or batch format. While more efficient than single record data entry there are still steps that need to be taken.

- Contact the CED Team via email (fw1sagegrouseced@fws.gov) to request a batch upload.
- Work with the CED Team/USGS to determine which fields from your datasets/databases will need to be transferred to the CED. Once the fields have been determined, the USGS will work with data providers and/or stewards to create crosswalks for the batch upload process.
- After the data has been uploaded, **each project or plan will still need to be reviewed by the data provider, to identify gaps in the transferred data**.

Visit the Batch Upload page to learn more: https://conservationefforts.org/sgce/batch_upload/

12.0 INTERACTIVE MAP and REPORTING

One of the new features of the CED is our Interactive Map which allows users to view data related to conservation efforts, but also resource information used in evaluation or for siting. Users can access the Interactive Map from several places including the Menu Bar (red arrow #1; Fig. 42), the User's drop down (red arrow #2; Fig. 42), and the 'INTERACTIVE MAP' button on the welcome page (red arrow #3; Fig. 42).
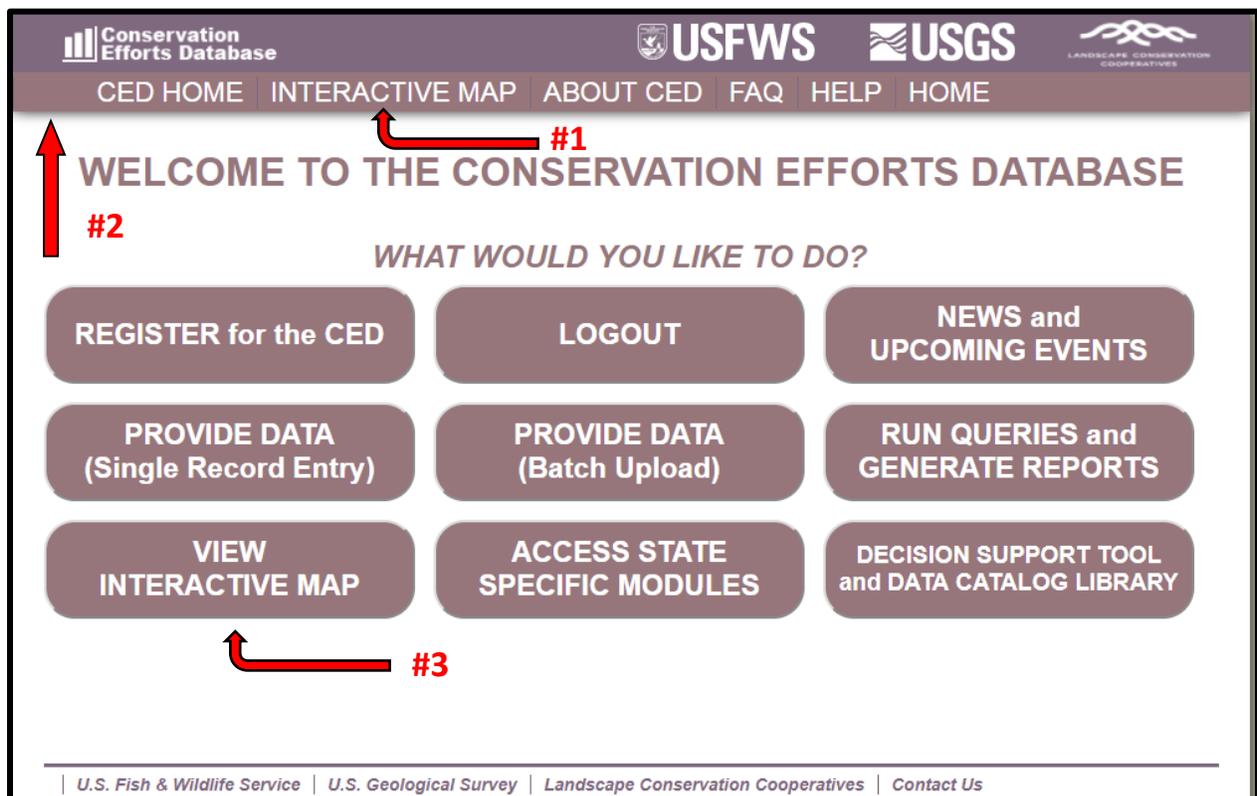
Figure 42. Welcome Page for CED v2.0.0.

The Interactive Map allows the user to complete simple queries based on a number of fields including Activity Type, State, and more. The Interactive Map also has the ability to produce summarized reports based on underlying spatial layers and resource values. Summary reports are generated from the spatial data provided, meaning that spatial data needs to be accurate to prevent over estimates in the reports. The CED Team is currently working with our partners to ensure data collection moving forward has spatial data that is truly representative of the efforts, and do not contain significant portions of lands not treated or included in the effort.

At this time, reports are not available for download, but we will be adding that feature in an upcoming update, so that summary information may be used for reporting purposes. At this time, we ask users to coordinate with the CED Team to ensure accuracy of the information used in the Interactive Map's summary reports. Additionally, there may be a time lag associated with when users provide data, when they are 'approved' and submitted to the CED. Only after that point will the information be available for reporting/query purposes. The CED Team wants to ensure users have a date stamp informing them of when the data was provided last.

13.0 RECORD QUERY

This section is under development.

14.0 SUBMIT A BUG REPORT

The CED is a new website, and as such, errors and glitches are bound to crop up during its initial implementation. Please help us by filling out a Bug Report whenever you find that something is confusing or a page is not functioning properly. Bug Reports are easy to create, require just a minute or two to complete, and are easily found under the Help tab. You may also click the link provided here: https://docs.google.com/a/fws.gov/forms/d/1ugrfzbkNutUJda3LU2iyAYprvdl-Je_Ug9UGSCjfT_4/viewform

15.0 ASK A QUESTION

Do you have a question about the CED or require assistance? Please use our form to submit a question: https://docs.google.com/a/fws.gov/forms/d/1ugrfzbkNutUJda3LU2iyAYprvdl-Je_Ug9UGSCjfT_4/viewform. If you require an immediate response, you can also send an email to fw1sagegrouseced@fws.gov.

APPENDIX A – Glossary

Attribute data: The information requested in the CED for a conservation plan or project (e.g. activity, sub-activity, threat the effort is intended to help ameliorate, effectiveness information, etc.). For individual efforts, the attribute data is required information to enter the plan or project. When batch uploading tabular or geospatial data, some attribute data may be missing and will need to be provided.

Candidate Conservation Agreement (CCA): Voluntary conservation agreements between the US Fish & Wildlife Service and one or more public or private parties to address the conservation needs of proposed or candidate species, or species likely to become candidates, before they become listed as endangered or threatened. The Service works with its partners to identify threats to the species, plan the measures needed to address the threats and conserve these species, identify willing landowners, develop agreements, and design and implement conservation measures and monitor their effectiveness.

Candidate Conservation Agreement with Assurances (CCAA): Voluntary conservation agreements that provide non-federal landowners with additional incentives beyond a CCA for engaging in voluntary proactive conservation through assurances that limit future conservation obligations. One of the primary reasons for developing the CCAA program is to address landowner concerns about the potential regulatory implications of having a listed species on their land. The CCAA program specifically targets non-federal landowners and provides them with the assurance that if they implement various conservation activities, they will not be subject to additional restrictions if the species becomes listed under the ESA.

Conservation Easement: A legal agreement voluntarily entered into by a property owner and a qualified conservation organization such as a land trust or government agency. The easement contains permanent restrictions on the use or development of land in order to protect its conservation values. Easement restrictions vary greatly for each agency or organization.

Endangered Species Act (ESA): Law which serves to protect and recover imperiled species and the ecosystems upon which they depend. Under the ESA, species may be listed as either endangered or threatened.

Equids: Free-roaming horses (*Equus caballus*) and burros (*E. asinus*).

Hydrologic Unit Code (HUC): A system of dividing and sub-dividing the United States into successively smaller hydrologic units or drainage areas.

Implementation Status: The stage in which a particular efforts (or suite of efforts) are classified as at the time when the information is submitted.
- In-Progress: A treatment that is still undergoing activity leading up to post-treatment monitoring.
- Completed: No additional actions are needed at the site, the effort is considered 'complete' from an implementation stand point. Post-treatment monitoring (effectiveness monitoring) is being conducted, should adaptive management actions be needed to achieve effort objectives.

Metadata: The who, what, when, where, and how behind the data. Metadata for individual efforts is captured as the plans are being entered. For example, who=project contact, when=effort start and finish dates, etc. Metadata will need to be provided during batch uploads of tabular or geospatial data in order to comply with Federal Geographic Data Committee guidelines.

Lek: An aggregation of males that gather to engage in competitive displays to attract attending females for mating.

Project: In a general sense, an action, treatment, or effort to implement conservation on the ground. Not to be confused with the BLM's use of the term "project" which is a collection of various treatments conducted within a 'project area'.

Range Improvement: Any activity, structure, or program on or relating to rangelands which are designed to improve production of forage, change vegetative compositions, control patterns of use, provide water, stabilize soil and water conditions, and provide habitat for livestock and wildlife. The term includes, but is not limited to, structures, treatment projects, and use of mechanical means.

Reclamation: Rehabilitation of a disturbed area to make it acceptable for designated uses. This normally involves re-contouring, replacement of topsoil, re-vegetation, and other work necessary to ensure eventual restoration of the site.

Restoration: Implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long-term. The long-term goal is to create functional, high-quality habitat that is occupied by sage-grouse. The short-term goal may be to restore the landform, soils, and hydrology, and increase the percentage of preferred vegetation, seeding of desired species, or treatment of undesired species.

Western Association of Fish and Wildlife Agencies (WAFWA): Association which advocates for the rights of 23 states and Canadian provinces to manage fish and wildlife within their borders. The WAFWA sage-grouse technical committee developed objectives in 1999 to maintain and increase where possible the present distribution and abundance of sage-grouse.

Wildland Fire: Any non-structure fire that occurs in the vegetation and/or natural fuels. Includes both prescribed fire and wildfire.

APPENDIX B – Proposed Uses/Analyses for Data Collected

Agriculture Conversion / Tillage Risk:

To more precisely evaluate the potential risk to sage-grouse from future agricultural conversion, we will replicate the analysis conducted for the 2015 greater sage-grouse status review. For a brief description of the proposed analysis, please see information below.

 (*Excerpts from the 2015 Not-Warranted Finding*) *Rates of agricultural conversion likely slowed and will continue to slow because the most productive sagebrush habitats have already been converted to croplands or pasturelands (Baker et al. 1976). Since 1982, acres of new cropland within occupied sage-grouse range have decreased in every State except South Dakota (NRCS 2013), likely due to the decreasing suitability of the remaining habitats for agriculture. However, economic incentives for biofuels and technological advances in irrigation and cultivation could potentially increase conversion rates in the future (Knick et al. 2011). In 2010, we determined that agricultural conversion would continue to affect sage-grouse in the future based on historical loss and fragmentation of sage-grouse habitat from agricultural conversion.*

For the analysis, we compared a new cropland suitability model (Lipsey et al. 2015) with the Population Index (Doherty et al. 2016). The cropland suitability model uses soil and climate data to predict the probability that an area could be converted to cropland (Lipsey et al. 2015). The Population Index model identifies important sage-grouse population centers (Doherty et al. 2016). By comparing these two models, we quantified the percent of the Population Index that overlapped with sagebrush habitats in the MZ I that have a high potential to be converted to agriculture in the future. Because the cropland suitability model was only finalized for MZ I for reasons explained below, the results of this exercise specifically apply only to MZ I, but can be used to assess potential probabilities of conversion to agriculture rangewide.

The cropland suitability model was developed only for the Great Plains (MZ I), and not for the Columbia Basin (MZ VI) or the Snake River Plain (MZ IV), where agricultural conversion also occurred, due to the limited availability of land cover data, the small size of the Columbia Basin (MZ VI), and differences in the way sage-grouse use agricultural fields between these three MZs. Additionally, more of the Columbia Basin (MZ VI) has already been converted to cropland (Knick et al. 2011) and the Great Plains (MZ I) has the highest percentage (69 percent) of private lands, so the potential risk of agricultural conversion is greatest in the Great Plains (MZ I). As a result, the cropland suitability model focused only on the MZ with the greatest potential to be converted in the future, so our overlay analysis with the sage-grouse breeding distribution model could only be calculated in the Great Plains (MZ I).

We will utilize data collected in the CED, in the form of conservation easements (with the distinct purpose of preventing tillage of sagebrush habitats), wildlife management areas, and land acquisitions (acquired with the specific purpose of preventing tillage and managing for characteristics representative of healthy sagebrush habitats, to evaluate their benefit to greater sage-grouse (or other obligate species) by comparing against the Population Index model referenced above, as well as if the cropland suitability model to assess the amount of potential threat that has been addressed given the probability it contains the characteristics of suitable cropland.

Oil and Gas Development:

To more precisely evaluate the potential risk to sage-grouse from oil and gas development, we will replicate the analysis conducted for the 2015 greater sage-grouse status review. For a brief description of the proposed analysis, please see information below.

(*Excerpts from the 2015 Not-Warranted Finding*) *For this status review, we used peer-reviewed and published methodologies (Copeland et al. 2009, entire) to model the probability of future oil and gas development impacting sage-grouse. The model focused on assessing the risk of nonrenewable energy in MZs I and II, the two areas with the highest potential for future nonrenewable energy development (Juliusson and Doherty 2017). Although nonrenewable energy development potential exists and will continue in the Uinta-Piceance Basin (MZ VII), the model not applied to MZ VII because the relative proportion of potential development was low, even under the highest development scenario. The model used geological information illustrating potentially available oil and gas resources to map areas of likely future development (Juliusson and Doherty 2017). We also used Oil & Gas Resource Assessments developed by the USGS to incorporate future maximum potential development scenarios into the analysis (Juliusson and Doherty 2017). The analysis quantified potential effects to sage-grouse we quantified the percent of the Population Index (Doherty et al. 2016) as well as the modeled Breeding Habitat Distribution (Doherty et al. 2016) potentially exposed to future energy development based on the availability of oil and gas resources.*

We will utilize data collected in the CED, in the form of Federal Land Use Decisions, No Surface Occupancy restrictions, and conservation easements (land include jurisdiction over subsurface mineral rights, that prevent or limit the development in the easement area), as well as other regulatory protections that can be illustrated spatially, to evaluate their benefit to greater sage-grouse (or other obligate species) by comparing against the Population Index and Breeding Habitat Suitability models referenced above, as well as if layers depicting development scenarios as described above.

Conifer Encroachment:

We are currently exploring ways to evaluate the conservation benefit from conifer removals efforts including but not limited to responses described in Baruch-Mordo et al. (2013), as well as methods used by partner agencies.

We are evaluating current products available to spatially illustrate where conifers are encroaching into sagebrush ecosystems. Those products include a layer created by the BLM National Operating Center for use in tracking disturbance as part of the BLM and USFS Monitoring Framework which could provide valuable insight. Furthermore, mapping product described in Falkowski et al. (2017) can offer valuable information as to where conifer is encroaching into sagebrush habitats and in relation to sage-grouse habitats.

In 2017, the Rangeland Ecology & Management produced a special issue, including a series of publications that describe the benefit achieved through conifer removals which provides insight into how these actions can be effective at conserving sagebrush habitats that sage-grouse and other sagebrush dependent species rely on.

Invasives / Annual Grasses:

We are currently exploring ways to evaluate the conservation benefit from actions aimed at reducing or eliminating invasive annual grasses (cheatgrass, medusa head, etc.). It is our hope to work with subject matter experts to not only identify the spatial information that might best illustrate where infestations occur, but also information to help evaluate[biological] effectiveness of the various efforts.

Wildfire:

We are currently exploring ways to evaluate and quantify the conservation benefit from actions aimed at reducing the impacts of wildfire, notably habitat loss and subsequent incursion of invasives annual grasses. We are also looking into ways to better quantify the conservation benefit of pre-suppression actions such as fire breaks.

Sagebrush and Sagebrush Obligate Resource Values:

We are in the process of identifying spatial information in addition to those layers that illustrate breeding habitat (Doherty et al. 2016) and relative population index (Doherty et al. 2016) for greater sage-grouse to expand to other sagebrush dependent species. Work being conducted through the WAFWA Sagebrush Conservation Strategy may provide information that could satisfy this need.

Additionally, we are including the Resistance and Resilience information (Chambers et al. 2014, 2016, 2017), and will continue to make improvements to calculate the amount of overlap between conservation efforts and these layers.

APPENDIX C – Literature Cited

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