

The Conservation Efforts Database: Improving Our Knowledge of Landscape Conservation Actions

Anthropogenic impacts that are detrimental to fish, wildlife, plants, and ecosystems are often the focus of conservation. The intensity and extent of these impacts, in many instances, are thoroughly documented. However, conservation actions and their effectiveness to address these impacts can be poorly documented. Even when conservation actions are documented, it can be difficult to determine the short- and long-term effects on targeted species or habitats if poor record organization exists or there is a lack of post-action monitoring. The Conservation Efforts Database (CED) enables partners to document and record conservation actions and post-action effectiveness across the landscape. The CED can be an important tool, along with scientifically-rigorous post-conservation monitoring, to implementing landscape-scale adaptive management.

What are the functions of the CED?

The CED is a secure, cloud-based, spatially-enabled tool that can be used to document and track conservation actions across large, multi-jurisdictional landscapes. The CED was initially developed to support the 2015 Endangered Species Act status review for greater sage-grouse (*Centrocercus urophasianus*) and addresses important data security and sensitivity concerns involved with this type of data. Currently, the CED accepts policy level data, such as Land Use Plans, and treatment level data, such as conifer removals and post-fire recovery efforts which enable a variety of custom spatial and non-spatial records. Users can summarize information at a broad scale using the interactive map or text based queries. By design, the CED architecture is fluid and adaptable to many different landscape management challenges while incorporating user's data security requirements.

The CED:

- Allows multiple-users to securely enter data (single entry or batch upload) from any location
- Stores supporting documents, such as reports and monitoring or effectiveness information uploaded by partners
- Assigns an approving official for each user to ensure records are complete and accurate
- Links conservation actions to one or more threats (one-to-many relationships)
- Can be used to site new conservation efforts in a strategic way relative to other efforts implemented across multiple jurisdictions
- Allows reporting and summarization of different actions from easements to state wildlife action plans to regional planning efforts at multiple scales, such as management zones and states

The CONSERVATION EFFORTS DATABASE (CED) was co-developed by the U.S. Fish and Wildlife Service (USFWS), the U.S. Geological Survey (USGS), and the Great Northern Landscape Conservation Cooperative (GNLCC):

- USFWS provided a comprehensive ecological assessment separated by threats and efforts, and database structure based on user needs.
- USGS provided database and website design expertise building off of the Land Treatment Digital Library.
- GNLCC provided ecological, database, and GIS expertise, greatly enhancing CED capabilities.

Many state and federal partners provided input and feedback, ranging from design recommendations to policy sideboards, ensuring the CED has broad applicability and interoperability.



The Conservation Efforts Database website is a gateway to share and evaluate data on diverse conservation actions occurring across the landscape.

The CED outputs summary information using both spatial and tabular queries for a variety of criteria, such as threats, conservation metrics, and implementation results at multiple scales. The precise content and extent of data exchange is customizable based on partner agreements such as a Memorandum of Understanding.

How can the CED be used?

Currently, the CED can be used as a species status assessment tool. However, there is potential to expand in response to management needs and research. The greater sage-grouse case provided an ideal model for CED development because of multiple data security mandates and concerns ranging from private land owner information to individual lek locations. The CED is sensitive and adaptable to the most challenging data sharing demands.

Here are examples of how the CED might also be used:

- A wildlife manager interested in a specific population could summarize the extent of restoration efforts or conservation easements within a pre-defined geographic area.
- A resource specialist could use the interactive map feature to strategically site conservation actions based on the location of other actions being implemented by another group or agency.

- The CED can be queried to produce summary results highlighting some of the conservation metrics covered by a suite of efforts.
- The CED organizational structure allows it to contribute information for many different types of analyses. For example, in an effort to understand population-level responses to multiple dynamic ecosystem processes, CED activities could be combined with population, land cover change, and climate data.
- A researcher could conduct a balanced sensitivity analysis, revealing cost efficiencies and effectiveness of conservation actions.
- Multi-jurisdictional stewardship of data sets the stage for landscape-scale effectiveness monitoring.

Together, these planning, design, implementation, and monitoring applications provide a foundation for a landscape-scale adaptive management framework.

Learn more

Visit the CED website at <http://conservationefforts.org>. For questions, please see contacts on the website About page or contact Lief Wiechman; lief_wiechman@fws.gov.

The screenshot shows the 'STEP 1 - CREATE NEW PROJECT/EFFORT' form. It includes a header with logos for USFWS and USGS. The form has several fields: 'CED Effort Name' with a required field indicator and a format instruction; 'Effort Status' with radio buttons for 'In Progress' and 'Completed'; 'Activity' and 'Subactivity' dropdown menus; 'Implementing Party' and 'Office' text boxes; and 'Date Created' with a date picker. A 'Save and Continue' button is at the bottom. A message states: 'You are creating a Spatial Project. Spatial data is required'.

Customizable and adaptable web-based data entry allows multi-user editing by any authorized data provider using an internet connection.

Available to the public, the interactive map allows front page access for quick perusal of conservation efforts by powerful filter options and pin-point identification of information.

