

# Monarch Conservation Database (MCD) Technical Webinar

February 8<sup>th</sup>, 2018

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- Hello and welcome to the second Monarch Conservation Database technical webinar. My name is Steve Choy and I am coordinating the development of our database. As with the first technical webinar, PDF versions of this presentation will be posted on the database website along with the script and any other supplemental materials we'll be showing today.

# Today's Topics

- Monarch Conservation Database Updates
  - MCD release schedule
  - Database Fields
  - Threats and Activities Table
- Completing and submitting records in the MCD
  - Key definitions
  - Required fields
  - Data Coordinator role
- Database mock-up



- During today's webinar, we will discuss:
  - Updates from the first webinar, including:
    - A revised database release schedule
    - Updates to the database fields, and
    - Updates to the threats and activities table
  - Next, we'll pick up where we left off during the first webinar and discuss required fields and how to complete and submit records in the database
  - Finally, during the second part of this webinar, we'll have an initial look at the user interface.

# MCD Updates

- 2 releases
  - MCD Release 1
    - Features and functions:
      - Enter/submit conservation plans and efforts (i.e. records) through single record editor or batch upload
      - Tag collaborators
      - Search records belonging to user, user organization, or collaborator



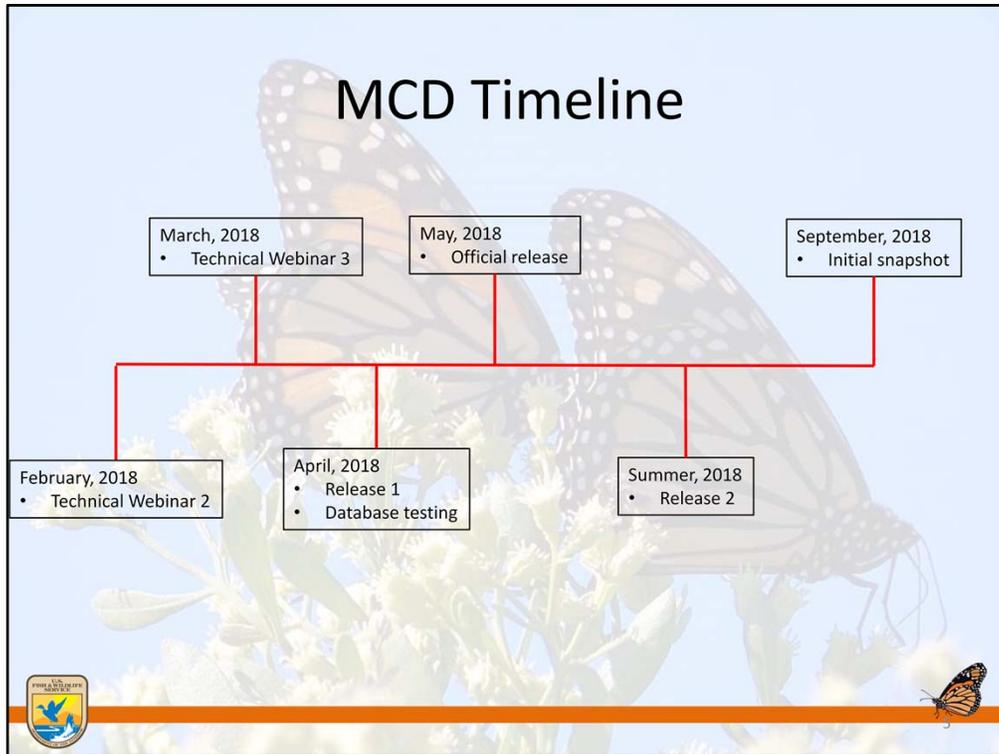
- One of the most important updates to note is that, in order to better accommodate the Species Status Assessment timeline, we've had to modify our strategy for releasing the database. Now, instead of one release, we'll have two releases. The first release of the database will allow folks to request and gain access to the database and enter and submit conservation plans and efforts (collectively known as records) one at a time through a single record editor, or many at a time via batch upload. Additionally, approved users will be able to tag collaborators to view records and search among records that they created, that belong to their organization, or that they have been tagged as a collaborator on.

# MCD Updates

- 2 releases
  - MCD Release 2
    - Features and functions
      - Mapper
      - Queries of all records in MCD



- For the second release, we plan on having the database mapper available for the public to explore and for registered users to be able to perform canned and ad hoc queries on all of the records in the database. Note that while all records may be queried, not all fields will be made available



- We are aiming for release one as early as April 2018. We will have a few weeks of testing so the database will only be available to a limited amount of testers. Our intent is to make the database available to all users in early May. Please note that this will also impact the data collection period; we plan to take our initial “snapshot” of the database for the SSA analysis in early September, 2018.
- The second release will occur sometime during the summer of 2018.

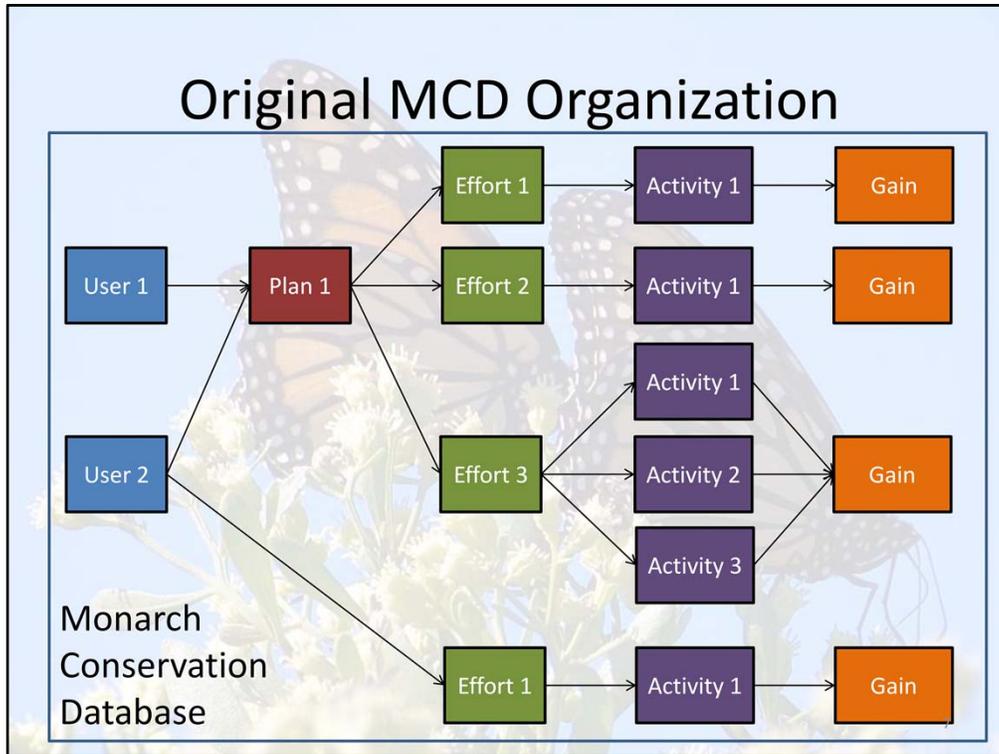
## MCD Updates

- Changes to database fields
  - 2 required fields added: sub-activity & Data Coordinator
  - Most changes entailed fields moving tables or fields being removed
- Changes to threats and activities table
  - Activities relating to addressing pesticide use have been added
  - Sub-activities have been added
- “Hide” feature has been removed
  - Spatial data for the mapper will automatically be aggregated to county level or obfuscated in some other way
  - Other viewable data will be kept at a high level
- Any last minute comments or suggestions can still be sent to [FW3\\_monarchconservation@fws.gov](mailto:FW3_monarchconservation@fws.gov).

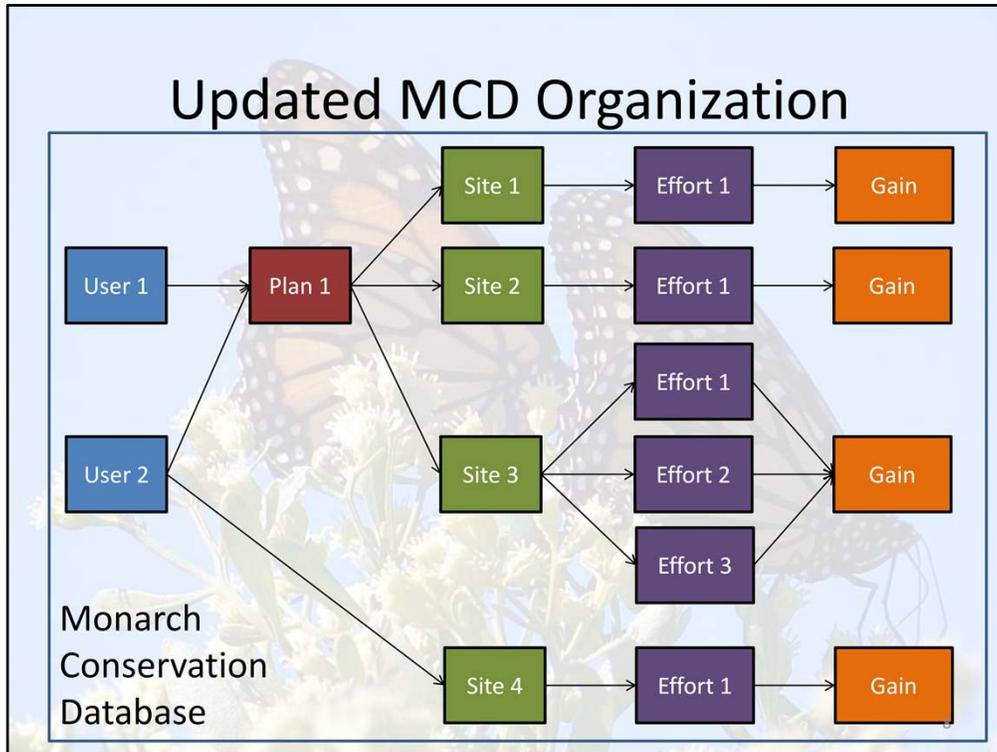


- Other important updates relate to the database fields and threats and activities table. As a part of the process of finalizing the data model and business rules of the database, some of the database fields were removed, or moved to a different table. There have been 2 required fields added: the sub-activity field and the Data Coordinator field. The sub-activity field will allow users to provide more specific information regarding their effort, and, while technically not a data field, the Data Coordinator designation will provide an additional layer of accountability.
- With respect to the threats and activities table, we have updated the table with activities that can be implemented to address the threat of herbicide and insecticide use and, as I just mentioned, we have added sub-activities to this table as well.
- Finally, we have removed the “hide” feature for spatial data. If a database user provides spatially explicit data, that data will be used to calculate land use, acreage, and county. For the purposes of the mapper in release 2, no shapefiles will be shown; all information will be scaled to the county scale. Other data that will eventually be viewable and queryable following release 2 will be limited to high level information, such as organization, activity, acreage, county, and land use.
- I will quickly exit the slideshow to highlight the additions to activities and the new sub-activity list.

- As a reminder, updated versions the database fields and threats and activities table have been posted on the database webpage.
- If you have any last minute comments or suggestions on the database fields or threats and activities table, please send them to [FW3\\_monarchconservation@fws.gov](mailto:FW3_monarchconservation@fws.gov) as soon as possible! We are particularly interested in any activities and sub-activities that we have not yet considered.



- We have also updated the database organization chart to be more in line with the definitions found in the Policy for Evaluating Conservation Effort or PECE policy. Recall that certain efforts in the database will be evaluated for the certainty of implementation and certainty of effectiveness through the PECE Policy. Shown on the screen is the original organization chart from the November webinar.



- You can see in the new organization chart that the structure itself hasn't changed – the only thing that has changed is the name of the major tables represented by the boxes.
- So, what was called an effort is now called a site, and what was an activity is more appropriately called an effort.
- The way to read this now is a user may start with entering a plan into the database. The user can then enter efforts associated with that plan, but before providing information about the effort or activity itself, the user must describe the location or site upon which the effort is taking place. In essence, the effort table is an extension of the site table. To reiterate, the site table simply describes the location at which efforts are being implemented, and the effort table has information about what is actually being implemented. We split these into two tables reflect the fact that there may be many efforts at one site, but all of the effort still results in a single, overall gain for the site.

# Key MCD Definitions

- Plan – a conservation agreement, conservation plan, or management plan
- Approved plan – a plan that has been adopted or published by a government agency, organization, business, or individual
- Site – a discrete patch of land with a single or obviously dominant land use or individual patches of land within a discrete area (i.e. county) that share a single or obviously dominant land use
- Effort – an activity, action, or program implemented on a site or sites to benefit monarch butterflies and/or their habitat
- Formalized effort – an effort that has been specifically identified in a plan
- Required field – a database attribute that cannot be a null value; necessary for core database functions and evaluations
- Data coordinator – a database user with the added capability to submit records on behalf of an organization or individual



- Before we switch gears and jump into completing database records, I thought it would be useful to review a few key definitions that will be particularly germane to today's discussion.
- A plan can be considered a conservation agreement, conservation plan, or management plan
- An approved plan is one that has been adopted or published by an agency, organization, business, or individual
- A site is a discrete patch of land with a single or obviously dominant land use or many patches of land within a discrete area (a county for example) that have in common a single or obviously dominant land use
- An effort is an activity, action, or program that has or will be implemented on a site to, in this case, benefit monarch butterflies
- A formalized effort is one that has been specifically identified in a plan
- A required field is one that cannot be null and is necessary for core database functions or evaluations to be carried out.
- A Data Coordinator is a database user that has the added capability to quality check and submit records on behalf of an organization or individuals

## Completing Records in the MCD

- How do I complete and submit records in the MCD?
  - Complete records are those that have all required fields populated with no validation errors
  - All records may be reviewed, but only completed records can be fully evaluated
  - Evaluations:
    - Gain
      - Milkweed stems
      - Acres
        - » created/enhanced
        - » protected
        - » managed
    - Policy for Evaluating Conservation Efforts (PECE Policy)



- So now, we can continue where we left off during the first webinar. Back in November, we covered:
  - The purpose of the database,
  - Preliminary database inputs and outputs,
  - Preliminary threats and activities, and
  - Preliminary data analysis
- The next logical topic would be how to complete and submit records in the database
  - In order for a record to be considered complete, the required fields must be populated and have no validation errors. An example of a validation error is an instance where the activity indicated is not relevant to the land use classification of the site. There will be a list of validation efforts in a database user guide once the database goes live. While all records may be reviewed, only complete records can be fully evaluated.
  - Recall from the first webinar that we are evaluating efforts for
    - Gain in terms of milkweed and acreage, and
    - Certainty of implementation and effectiveness for efforts through the PECE policy

## Completing Records in the MCD

- Required Fields
  - A few varieties of “required” fields:
    - Fields required for accountability
    - Fields required to evaluate gain in milkweed and/or acres
    - Fields required for Policy for Evaluating Conservation Efforts (PECE Policy) evaluation
    - Fields required for batch upload
  - Updated list of fields will indicate what fields are required for which evaluations



- There are a few varieties of required fields:
  - Those required for accountability
  - Those required to evaluate gains in milkweed and/or acres,
  - Those required for the PECE policy analysis, and
  - Those required for the batch upload to work. To the extent possible, we tried to keep fields required for the batch upload a subset of the required fields I just mentioned for the sake of simplicity.
- You’ll note that in the new database fields posted online, there is an updated column that indicates which field is required for each evaluation

## Completing Records in the MCD

- Fields required for accountability
  - User information
  - Plan/site/effort name
  - Data Coordinator



- The fields required for accountability include user information so we can establish accounts and contact the user if there are questions regarding a record, and basic information such as the name of the plan or effort to be able to distinguish records in the database. Additionally, we will require the designation of a Data Coordinator, which I'll talk about in detail later on in the presentation.

## Completing Records in the MCD

- Fields required to evaluate effort gains

- Spatially explicit data delineating effort
- Land use of site after effort, if applicable
  - All Hands On Deck (Thogmartin et al. 2017)
- Activities and sub-activities

OR

- Acreage of effort
- Land use of site
  - All Hands On Deck (Thogmartin et al. 2017)
  - Land use of site after effort if, applicable
- County and state of site
- Activities and sub-activities

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- There are two approaches for populating the fields that are required to calculate effort gains:
  - The first is spatially explicit data delineating the effort, such as a shapefile. For the second release of the database, we are considering a feature that allows users to delineate their effort through the user interface as a part of the data entry process.
  - If a user cannot or does not wish to provide spatially explicit data, we would then require site acreage, site land use from a lookup table consisting of land use types found in the All Hands on Deck paper, and state and county. Recall that the Thogmartin et al., 2017 All Hands on Deck paper used literature review and expert elicitation to estimate milkweed stem density on different types of land use classes.
  - For either method, the activity and sub-activity implemented are also required and, if land use will change as a result of the effort, the land use after the effort has been implemented must be indicated.

## Completing Records in the MCD

- PECE Policy criteria
  - Requirements depend on effort status
    - Efforts implemented since 2014 and complete at the time of entry into the database → no PECE requirements
    - Efforts implemented since 2014 but not yet complete at the time of entry into the database → PECE effectiveness for each effort
    - Efforts not yet implemented → PECE implementation for the associated plan (if applicable) and effectiveness for each effort



- Fields that are required for efforts to be evaluated through the PECE policy depend on the status of the effort in question
  - Efforts implemented since 2014 and for which the status is complete at the time of data entry have no PECE requirements
  - For efforts that have been implemented since 2014 and have a status of implemented at the time of data entry, PECE effectiveness questions must be answered for each effort.
  - For efforts that have a status of not yet implemented, PECE effectiveness questions for the effort must be answered, and if there is a plan associated with the effort, the PECE implementation questions must be answered for that plan.
  - Specific information regarding PECE policy questions can be found on the MCD web-page.

## Completing Records in the MCD

- Bulk upload requirements:
  - Will likely be minimal and simple
    - Plan/site/effort name
    - Responsible organization
  - Designed to be able to “seed” the MCD
  - Formats
    - Flat file (.csv)
    - File geodatabase
  - Can populate as many fields as desired or provide only batch upload required fields and finish through single effort editor



- The next set of required fields do not necessarily relate to evaluation of efforts but have to do with the batch upload process. For users who have many records to enter into the database, they may choose to forego using the single record editor interface through which only one plan or effort can be entered at a time, and use the batch upload method. The batch upload process is still under development, but the most likely process is that users will have the option of populating a flat file version of the database or uploading a file geodatabase. These templates will be made available as soon as possible.
- Our current thinking is that we will keep the list of required fields for the batch upload process simple and to a minimum. In other words, enough to “seed” the database with information so as to be able to distinguish different records in the batch. Users will have the choice of filling out all of the available fields in the flat file or geodatabase templates if they prefer, or they may fill in only the required fields for the batch upload, upload to the database, and fill in any remaining required fields (i.e. for the gain and PECE evaluations) through the single record editor interface.

## Completing Records in the MCD

- Required fields: Completed efforts

Plan (If Applicable)	Site	Effort
Plan Name	Site Name	Data Coordinator
Implementation status of efforts associated with the plan	Baseline land use classification	Activity
If the plan is an approved plan	Land use classification post effort (if different from baseline)	Sub-activity
	Acres	Status
	County	Start date
		End date

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- I'll quickly run through some of the most likely scenarios for data entry and the resulting required fields
- In the simplest scenario where an effort has been implemented since 2014 and is already complete at the time of data entry, there are relatively few required fields
  - If a plan is associated with the effort, required fields for that plan are the plan name, implementation status of the effort or efforts associated with the plan, and if the plan is an approved plan.
  - For the site of an effort, required fields are the site name, baseline land use classification, post effort land use classification if different from the baseline, and site acreage and county.
  - For the effort itself, the activity, sub-activity, implementation status, and start and end dates are required. Additionally, we will require the designation of a Data Coordinator to approve and submit the record.

## Completing Records in the MCD

- Required fields: Implemented efforts

Plan (If Applicable)	Site	Effort
Plan Name	Site Name	Data Coordinator
Implementation status of efforts associated with the plan	Baseline land use classification	Activity
If the plan is an approved plan	Land use classification post effort (if different from baseline)	Sub-activity
	Acres	Status
	County	Start date
		End date
		PECE effectiveness questions (6)

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- In a scenario where the effort has been implemented since 2014 but is not yet completed at the time of data entry, additional required fields include:
  - The 6 PECE effectiveness questions for the effort.

## Completing Records in the MCD

- Required fields: Planned efforts

Plan (If Applicable)	Site	Effort
Plan Name	Site Name	Data Coordinator
Implementation status of efforts associated with the plan	Baseline land use classification	Activity
If the plan is an approved plan	Land use classification post effort (if different from baseline)	Sub-activity
PECE implementation questions (9)	Acres	Status
	County	Start date
		End date
		PECE effectiveness questions (6)

- Finally, in a scenario in which the effort has not yet been implemented at the time of data entry, additional fields include:
  - The 9 PECE implementation questions for the plan, if there is indeed a plan associated with the effort

## Completing Records in the MCD

- Scenario: Batch upload

Plan (If Applicable)	Site	Effort
Plan Name	Site Name	Activity
Implementation status of efforts associated with the plan	Acres	Sub-activity
If the plan is an approved plan	County	Status
		Start date
		End date

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- We are still working required fields for the batch upload process, but it will likely include just a few fields; again, minimal information needed to distinguish records as unique in the database.

## Submitting Records in the MCD

- Data Coordinator role
  - Organizations can have as many approved database users as they need or want
  - Data Coordinators must be associated with effort records to review for completeness and accuracy and to submit records
    - Default Data Coordinator for individuals not belonging to a group or organization: FWS



- The last topic we'll review before our mock-up tour is the Data Coordinator role. During the first webinar, we recommended that groups or organizations coordinate and appoint a limited number of database users for that group or organization that will be in charge of QA/QC and submitting records to the database. After consultation with other database and security managers, we decided that we will now make this process mandatory for the database.
- Any organization can still have as many approved database users as they deem necessary. However, all database users must associate their effort records with a Data Coordinator that will have additional database capabilities and responsibilities, such as reviewing records for completeness and accuracy and, ultimately, submitting records to the database. For users that are a part of an organization or group, it is recommended that those users coordinate within that group or organization and decide who will be a regular user and who will be a Data Coordinator. When a user is not a part of an organization or group (for example, a private individual), the default Data Coordinator will be a biologist from the Fish and Wildlife Service.

## Submitting Records in the MCD

- Example Data Coordinator process
  - Fish and Wildlife Service Midwest Region
    - Regional Office (RO)
    - Field offices representing each state in the region
  - Field office biologists
    - Compile and populate records for respective states
    - Designate data coordinator at RO
  - RO Data Coordinator
    - Checks records for completeness and accuracy
    - Submits records to database



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- For an example of how this structure can work, let's take the Fish and Wildlife Service's Midwest region. There is one regional office and at least one field office for every state in the region. One potential strategy would be to have the field office biologist work to compile plan and effort information for their respective states and populate records in the database with that information. Field office biologists could then coordinate with the regional office and choose a Data Coordinator at the regional level who would be in charge of doing any last minute QA/QC spot checks and then submitting all of the records to the database. Requests to have a Data Coordinator role will occur when a user request access to the database.
- This is just one example – we are leaving it up to the database users to organize and coordinate how they see fit. The overarching goal and purpose of the Data Coordinator role and process is to avoid duplication of effort and as another layer of accountability.

# MCD Home Page

The screenshot shows the MCD Monarch Conservation Database home page. At the top, there are navigation tabs for 'My Conservation Efforts' and 'My Plans'. Below these are buttons for '+ New site' and '+ Bulk Upload'. A table displays existing records with columns for Site, Activity(es), Organization, Location, and Last Updated. A sidebar on the right contains 'My MCD Tools' with links for 'USER GUIDE AND HELP', 'MCD User Guide', 'Help Desk', and 'REPORTS AND DOWNLOADS' including 'Quality Check', 'My Effort Summary', and 'My Plan Summary'. The page footer includes logos for the U.S. Fish & Wildlife Service and the U.S. Department of the Interior.

Site	Activity(es)	Organization	Location	Last Updated
<a href="#">Necedah NWR</a> 2,038 Acres Shrubland (NLCD)	Increase milkweed	US FWS	Larimer, CO	10/10/2017
<a href="#">Devil's Lake State Park</a> 30 Acres Soybeans	Reduce pesticide use	WI Dept of Natural Resources	Weld, CO	08/07/2017

- Now for an initial look at the user interface. This is what the home page will look like for database users.
- You can see from these two tabs that there two main record types:
  - Conservation efforts, which include site and effort information, and
  - Plans
- Moving down the screen we have buttons to add a new conservation efforts starting with site information, or you can choose the bulk upload button to upload many records into the database via geodatabase or spreadsheet.
- This grid shows the user's existing records in the database with different filters to help sort, search, and quickly identify records that have data quality errors.
- The MCD Tool box allows users to access online help documents, a live helpdesk and reports.
- If we were to click on the Necedah National Wildlife Refuge site button,

# MCD Site View

The screenshot displays the MCD Site View for Necedah National Wildlife Refuge. The interface includes a header with the database name and user information, a breadcrumb trail, and a last updated timestamp. The main content area is divided into four sections: Site Details, Operations, Data Quality Check, and Sharing this Site. A map shows the site location. Three callout boxes on the right side of the screenshot are numbered 1, 2, and 3, corresponding to the Site Details, Data Quality Check, and Sharing sections respectively.

**Site Details** (1)

**Data Quality Check** (2)

**Sharing this Site** (3)

- we are taken to the Site View page. The first box shows basic information about the site.
- You can see that we have starred required fields. A site name is always required to create a site record.
- In the Data Quality Check box, more specific information about data quality errors will be listed. This will help both users and Data Coordinators determine if there is additional information needed.
- The Share Site box indicates which other MCD users are associated with the record and will allow other MCD users to be tagged as collaborators so that they will be able to view and edit the record.

## MCD Site View (2)

Method of specification

Shapefile

Public or Private Land  
The effort is on Public Land

Land Use Baseline   
Developed Open Space (ALCD) Core

Intersecting Counties   
Juneau, WI

Effective Acres   
98 Acres

Is the effort adjacent to agriculture  
Yes

Land Use After Effort  
same as baseline

Conservation Efforts [Add another Effort](#) +

Discontinue Use of Insecticide (18 Acres) [Edit](#) [Approve](#) [Delete](#)

Completed by US FWS from 5/1/2018 to 7/1/2018

Increase Milkweed (7 Acres) [Edit](#) [Approve](#) [Delete](#)

Not yet implemented. Intended implementation by US FWS from 12/10/2018 to 10/1/2019

Effort Habitat Gain [Edit](#)

Protocol: IMS

MEASURE	BASELINE (Apr 1st, 2013)	AFTER EFFORT (Apr 1st, 2015)
Milkweed Density	12	13
Milkweed Proportion Abundance	0.53	0.54

Location 1

Efforts 2

Gain 3

- Scrolling down on the Site View page, we see additional information about the site.
- Other required fields for the site include the site area in acres, the baseline land use, and county. If a user is able to upload a shapefile, those fields will automatically be populated.
- After providing site information, conservation effort information can then be added by clicking on the add effort button. More than one conservation effort can be associated with each site – in this example, the two conservation efforts at the site are discontinuing the use of an insecticide and increasing milkweed.
- The Effort Habitat Gain box will show any fields from the gain table that the user has populated for the site. Only milkweed density is a required field and it may be auto-calculated from the Site's land use information if actual field data is not available.
- There is additional information for each conservation effort to view and edit when you hit the edit button under conservation efforts, but those pages are still under construction. To get a preview of what fields will be available after clicking "add" or "edit effort", refer to the effort table in the list of fields.
- If we go back to the Home Page and open the Plan tab and selected a

plan,

# MCD Plan View

The screenshot displays the 'MCD Monarch Conservation Database' interface for the 'Hooperston Habitat Conservation Plan'. The page is titled 'MCD Plan View' and features a background image of a monarch butterfly. The interface is divided into several sections:

- Plan Details (1):** Contains fields for Name, Author, Duration, and Planned conservation complete? It also includes a star icon and a 'This is an approved plan' checkbox.
- Operations (2):** Includes a 'Delete' button and a 'Data Quality Check' section with a warning message: 'The approval field is missing a value'.
- Sharing this Plan (3):** Lists the Owner (Bobby Martin) and Editors (John Doe), with an 'Add users as editors' button.
- Plan Conservation Efforts (4):** A table listing conservation efforts for sites owned by or collaborated on by the user.

Site	Activity(ies)	Organization	Location	Last Updated
Site Name #1 2,038 Acres Stratford, IL, CO	Increase Habitat	Colorado DOT	Larimer, CO	10/12/2017
Site Name #2 30 Acres Daytona	Reduce Pesticide Use	Colorado DOT	Weld, CO	08/07/2017

- the Plan View page would be displayed.
- The Plan Details box shows basic information about the plan.
- Here, the site name and the plan approval status are required fields.
- Similar to the Site View page, the Plan View page also has a quality check box that identifies missing required or inconsistent fields.
- Also mirroring the Site View page is a feature that allows users to add collaborators in the MCD system to view and edit plan information.
- Lastly, we can see efforts associated with the plan, but note that only the efforts that the user is an owner of or collaborator on will be visible, so not all of the efforts associated with the plan may be displayed. To get a sense of what fields will be available when you hit the “add” or “edit plan” button, refer to the plan table in the list of fields.
- That was just a brief overview of what the user interface will look like – there are other features that are still under development. Our intent was to provide context and a better understanding of the relationship between plans, sites, and efforts and the required fields. During the next webinar, we will go into a much more in-depth tutorial on how to use the user interface.

# Webinar Schedule

- One more in March
  - Database tutorial covering:
    - Database access request
    - Single record editors
    - Query Feature
    - Batch upload process
  - Will be looking for volunteers to test drive the MCD



- Speaking of webinars, due to the altered release schedule, we've also had to change-up the webinar schedule. Instead of having 2 more technical webinars, we will have only one more webinar sometime in March. In addition to the tutorial, we will also be looking for volunteers to test drive the user interface and help us identify any major bugs.

## Updated Supplemental Materials

- Database fields
- Threats and activities table
- Simplified database model
- MCD and MCD webinar timeline
- Frequently Asked Questions



- Before we jump to questions and comments, I just wanted to re-cap all of the updated and new materials that can currently be found on the database website, including
  - Updated database fields
  - An updated threats and activities table
  - A simplified version of the database model
  - Updated database release and webinar schedules, and
  - FAQs that include questions and answers from the November webinar

## Monarch Conservation Database Information

- To provide feedback on or ask question about the Monarch Conservation Database, please email: [FW3\\_monarchconservation@fws.gov](mailto:FW3_monarchconservation@fws.gov)
- For additional information and updates, visit: <https://www.fws.gov/savethemonarch/MCD.html>



- Thanks again for your interest and participation. As always, please feel free to contact at me anytime at the database email address.