

A monarch caterpillar is perched on a milkweed flower. The caterpillar is orange with black stripes and is positioned in the center of the frame. The flower is a cluster of small, light pink blossoms. The background is a soft-focus green field under a clear blue sky.

Querying the Monarch Conservation Database

April 25th, 2019

Contact us any time at:

FW3_monarchconservation@fws.gov

Visit us any time at:

<https://www.fws.gov/savethemonarch/mcd.html>

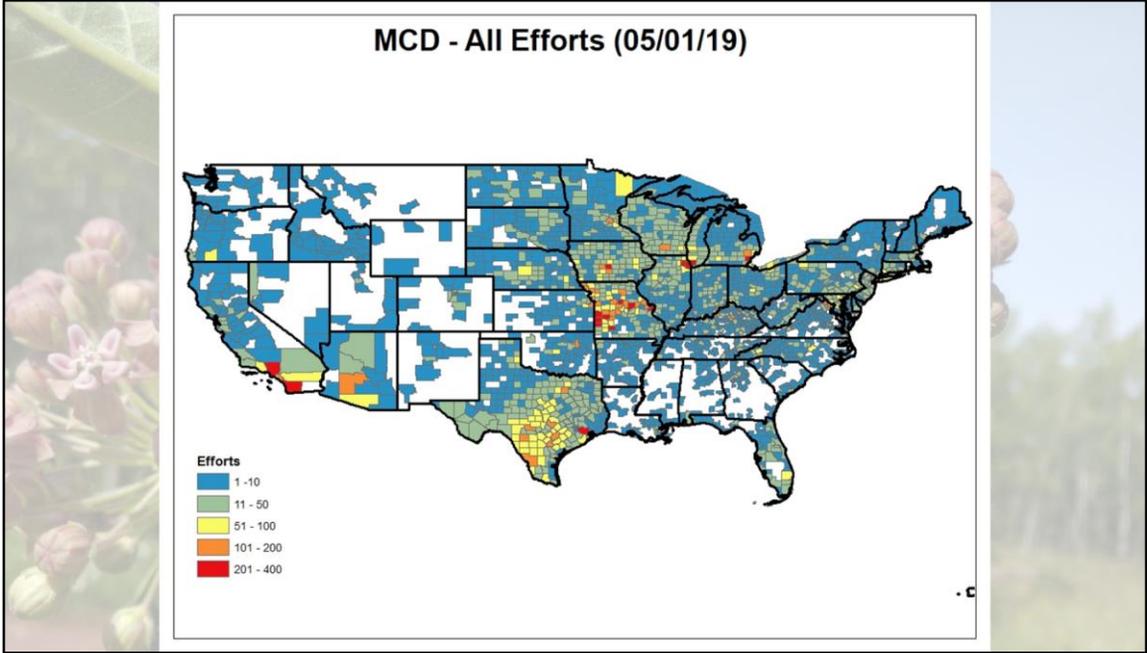
- Hello and thanks for attending the query tutorial for the Monarch Conservation Database or MCD. During today's webinar, I'll provide a brief summary of the data that has been entered into the MCD, then I'll introduce the query function of the MCD and run through a quick demonstration.

Monarch Conservation Database by the Numbers as of 05/01/19

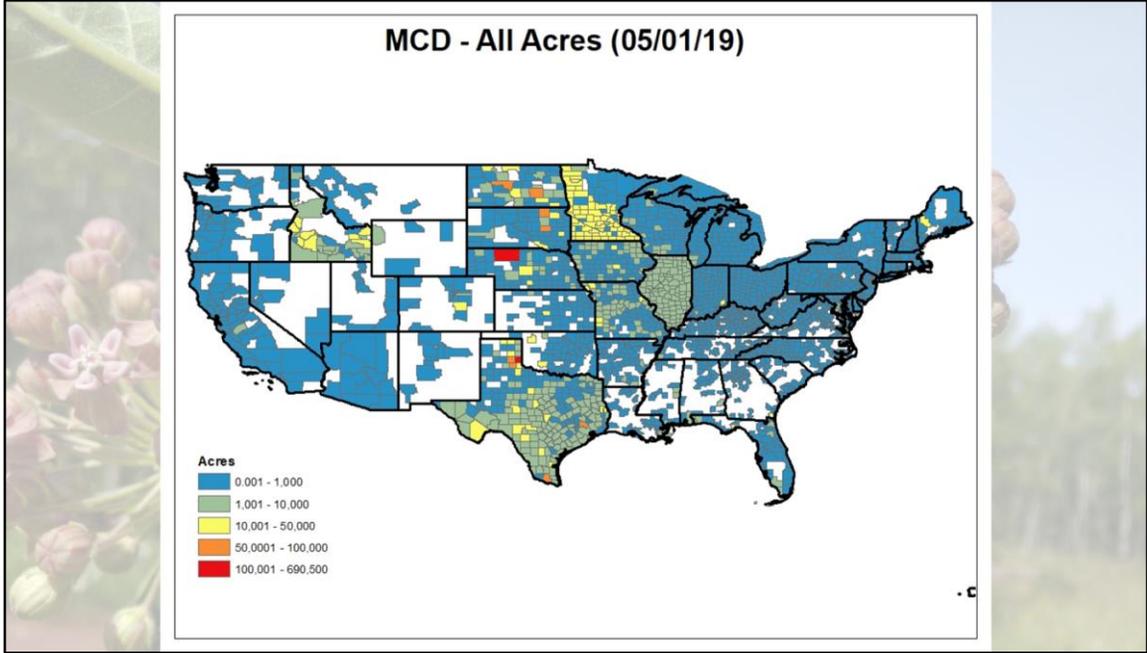
National Totals*	
Conservation Plans	115
Conservation Efforts	32,980
Acres	4,561,965
Estimated Milkweed	486,853,165

*Not filtered through Policy for Evaluating Conservation Efforts

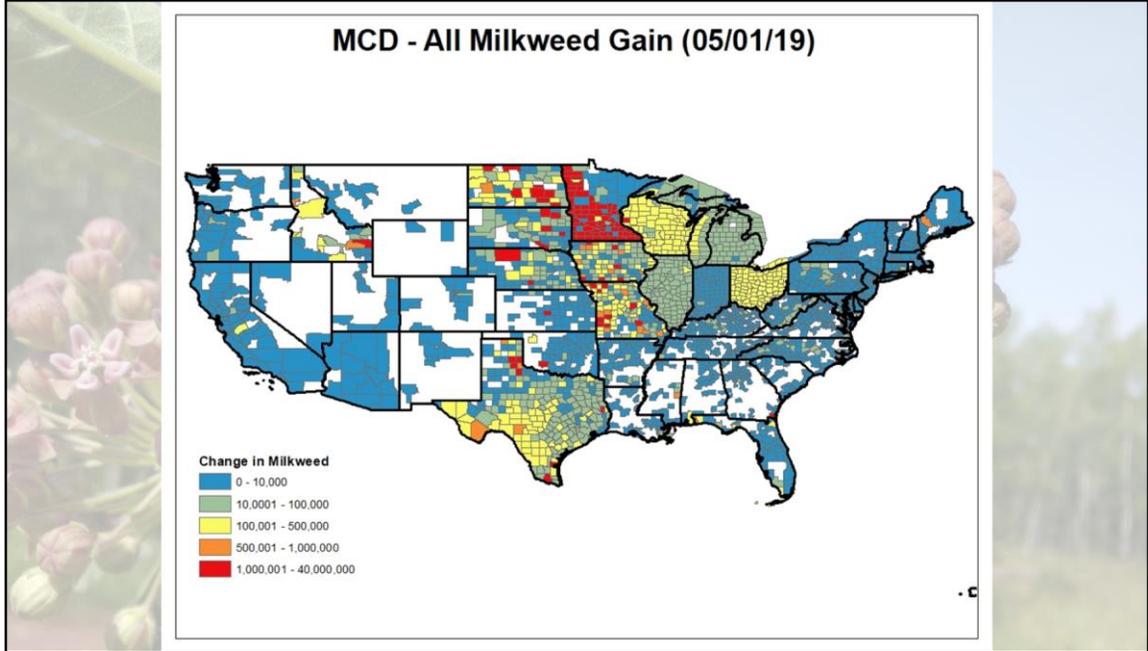
- These are the overall numbers in the MCD as of March, 2019.
 - There are a total of 115 plans in the MCD,
 - 32,980 conservation efforts,
 - These conservation efforts add up to over 4.5 million acres and add an estimated 486 million milkweed stems to the landscape



- This figure shows the number of efforts by county across the continental U.S. There is representation from all lower 48 states and Hawaii.



- This figure shows the number of acres by county,



- and this figure shows the estimated number of milkweed stems added by county.
- There are a few caveats to note with these maps and figures:
 - First, these data have not been filtered through the Policy for Evaluating Conservation Efforts (or PECE) criteria. If you remember from our early webinars, the PECE criteria help us to determine which future conservation efforts can be considered in the listing determination based on certainty of implementation and certainty of effectiveness.
 - These numbers represent only efforts entered into the MCD that are complete with respect to having the required fields populated.
 - Lastly, these numbers do not include Conservation Reserve Program (or CRP) data. We do have CRP in hand and have calculated the associated change in acreage and milkweed but because of the format of the CRP data received and the fact that CRP is also treated as a land use and not just an effort, we had to treat CRP separately. We will not be entering CRP data into the MCD but we will make the final numbers available. I can tell you that, between 2014 and 2018 there was a net loss in CRP acreage.

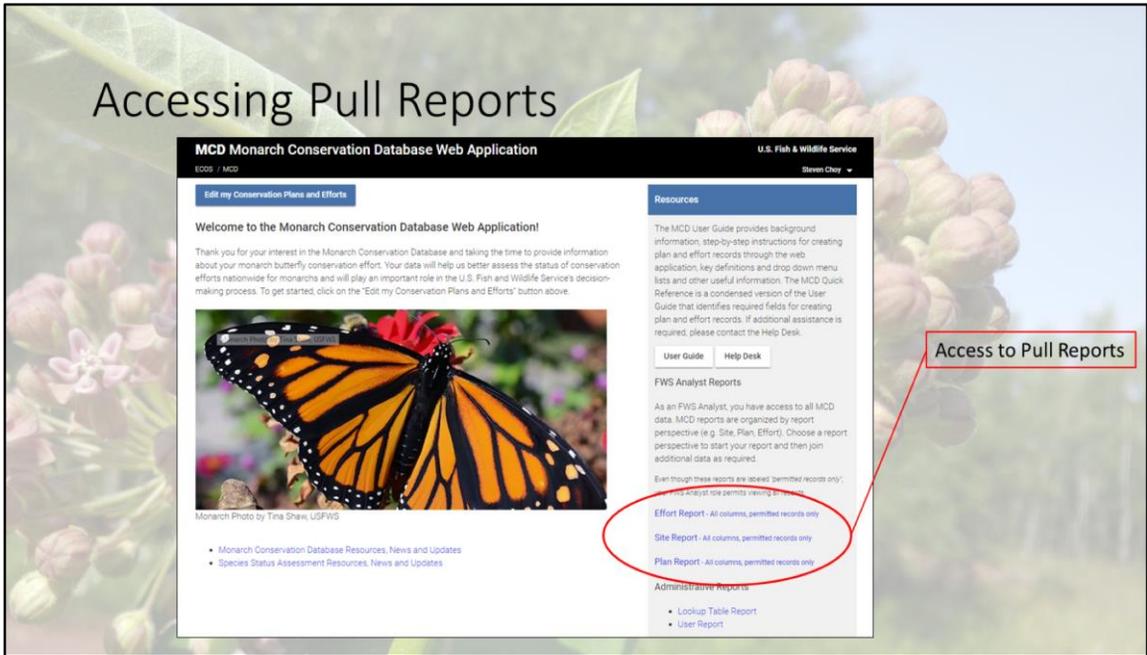
- Before moving on, I just wanted to reiterate my thanks to everyone who helped design the test the database as well as those who took the time to provide their data. I think we have an impressive dataset and this data will play a role in the listing determination.

Before Getting Started

- You must be a registered user of the Monarch Conservation Database (MCD) web application in order to perform queries
- 3 types of reports to query
 - By Plan
 - By Site
 - By Effort
- Similar to building queries in Microsoft Access

- So now let's get into querying the data.
- A few things to cover before we get started:
 - The first thing to note is that in order to query the MCD, you must be a registered user.
 - The next thing to keep in mind is that there are 3 types of reports based on the 3 main data tables you can query from. You can query the MCD by plan, site, or effort.
 - As you'll see in a few slides, since these tables are related, you will be able to query across tables, and you will be able to switch the report type in the query builder
 - Lastly, there is a bit of a learning curve but try to keep in mind that the process for querying the MCD is very similar to using the query builder in Access.

Accessing Pull Reports



- Here we have the homepage of the MCD
- Again, as you can see here, users can build their query based on the plan, site or effort data tables
- if we click on one of the reports (in this case effort),

Query Page

The screenshot shows the MCD Monarch Conservation Database interface. The main window is titled "Effort Report - All columns - permitted records only". On the left, there is a "Query building window" with various filters and options. On the right, there is a "Data Window" displaying a table of results. A red circle highlights the "Query building window" and the "Data Window".

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	1355	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	238	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented

- we are taken to the report page.
- The application used to query the MCD is called “Pull Reports.”
- The report page looks the same regardless of which report type you choose, but you will obviously see different fields or columns based on which table you have chosen for the basis of your report.
- To get refreshed on which fields are associated with which table, please refer back to the MCD Fields .pdf that is posted on the MCD website.
- There are two main windows on the query page:
 - The “Query Building” window which helps users construct their query and
 - The “Data Window” which displays the results of the query
- We’ll go through the components of each window

Query Page

The screenshot shows the MCD Monarch Conservation Database interface. The title bar reads 'MCD Monarch Conservation Database' and 'U.S. Fish & Wildlife Service'. The main heading is 'Effort Report - All columns - permitted records only'. The interface includes a search bar, filters, and a table of data. A red circle highlights the 'Query building window' area on the left, which contains tabs for 'Tables', 'Search', 'Filters', and 'Help'. A red box with the text 'Query building window' points to this area. The table on the right shows columns for 'Activity Type', 'Acres', and 'Effort Status'. The table contains several rows of data, including 'Implement Land Protection to Prevent Loss of Habitat and Nectar Resources' with various values for acres and status.

- Starting with the “Query Building” window, we can see 4 tabs:
 - The “Tables” tab allows the user to pick and choose which fields to query.
 - When the “Columns” button is highlighted, users can see available fields corresponding to the table underlying the report. In this case, we are in the effort report, so the available fields correspond to the efforts table. Recall once again that there are 3 reports, each based on one of the 3 main tables: plans, sites, and efforts.
 - Fields that have a check mark next to them are the active columns being queried.
 - In order to add a field to the query, users can either click on the field and it will be added to the right side of the existing fields in the main window, or you can drag and drop the field into the main window.
 - Fields from other tables can be accessed by clicking the “Related Tables” button. This will allow you to query across tables. In other words, you can generate an efforts report and pull in fields from the plans table so you can see what

plans are associated with each effort. Keep in mind that, in the Data Window, the query results will be de-normalized, so in this example, you may have multiple rows corresponding to one effort but each row represents a distinct plan associated with the effort if the effort was associated with more than one plan.

- Finally, you can access definitions for each field by clicking the “Description” button under the “Tables” tab.
- The next tab is the “Search” tab. This tab allows users to search for specific fields or column names. The search returns any columns that match your search as well as the table or tables for which the column is an attribute.
- The “Filters” tab allows users to perform more targeted queries of the columns. For example, if I wanted to find only efforts occurring within a certain state, I would use the “Filter” tab.
- Lastly, the “Help” tab provides basic instructions on using the query feature.

Query Page

The screenshot displays the MCD Monarch Conservation Database interface. The main window is titled 'Effort Report - All columns - permitted records only'. It features a 'Query Building' section on the left with various filters and a 'Data Window' on the right showing a table of effort records. A red circle highlights the 'Data Window' area, and a red box labeled 'Data Window' points to it.

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources	1355	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Natural Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Natural Resources	236	Implemented
Implement Land Protection to Prevent Loss of Habitat and Natural Resources		Implemented

- To the right of the “Query Building” window is the “Data Window.”

Query Page

The screenshot displays the MCD Monarch Conservation Database interface. The main heading is "Effort Report - All columns - permitted records only". The table shows the following data:

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	1355	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	238	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented

- The table portion of the “Data Window” is where the results of the query are displayed

Query Page

The screenshot displays the MCD Monarch Conservation Database interface. The main heading is "Effort Report - All columns - permitted records only". Below this, there are navigation options like "Refresh", "Size", and "Export". A table of data is shown with columns for "Activity Type", "Acres", and "Effort Status". A red circle highlights the column headers, and a red box labeled "Active fields" points to this area.

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	1355	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	238	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented

- The bar immediately above the table of query results allows users to rearrange the columns or fields by dragging and dropping and allows users to sort the data by each column.

Query Page

Navigate data output

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	1350	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	238	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented

- The bar at the top of the “Main Window” allow users to refresh the main window (you’ll need to refresh the main window after each time you add a column)
- Additionally, users can use the arrows to advance through pages of the query results (only 10 records are shown per page), change the font size, and view the SQL statement for the query.

Query Page

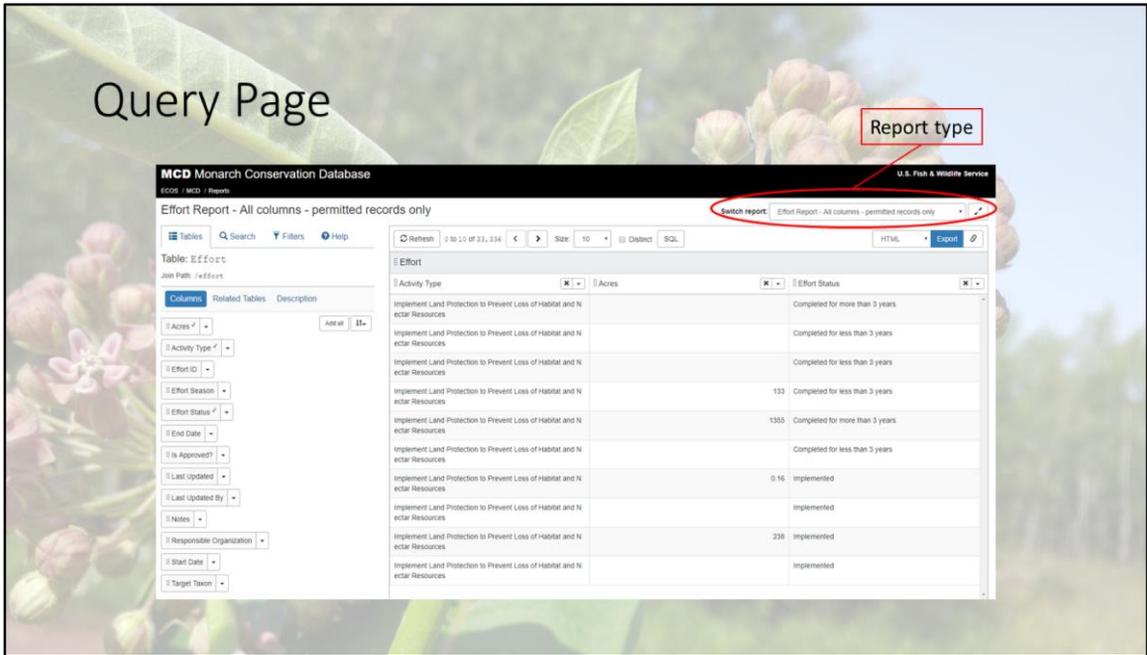
The screenshot displays the 'MCD Monarch Conservation Database' interface. The main content area is titled 'Effort Report - All columns - permitted records only'. It features a table with columns for 'Activity Type', 'Acres', and 'Effort Status'. The table contains several rows of data, including activity types like 'Implement Land Protection to Prevent Loss of Habitat and Nectar Resources' and their corresponding acreage and status. In the upper right corner of the data window, there are two buttons: 'HTML' and 'Export'. The 'Export' button is circled in red, and a red box with the word 'Export' is placed next to it.

Activity Type	Acres	Effort Status
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	133	Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	1355	Completed for more than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Completed for less than 3 years
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	0.16	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources	236	Implemented
Implement Land Protection to Prevent Loss of Habitat and Nectar Resources		Implemented

- In the upper right hand corner of the “Data Window,” users can choose to export the results of their query to HTML or CSV files.

Query Page

Report type



- The last component is a drop-down menu that allows users to change the report type. Users can switch report type based on the underlying table, or they can change the report type based on the desired breadth of results.
 - For most users, the columns that are available when querying all the records in the MCD will be restricted. This is done to protect any information from other users that could be considered “sensitive.” So, if you select the “permitted columns – all records” report type, you will be able to see all of the records in the MCD, but not all of the fields. If you choose the “all columns –permitted records” report type, you will be able to see and query by all of the fields, but you will be limited to only those records for which you are an editor or the owner of.

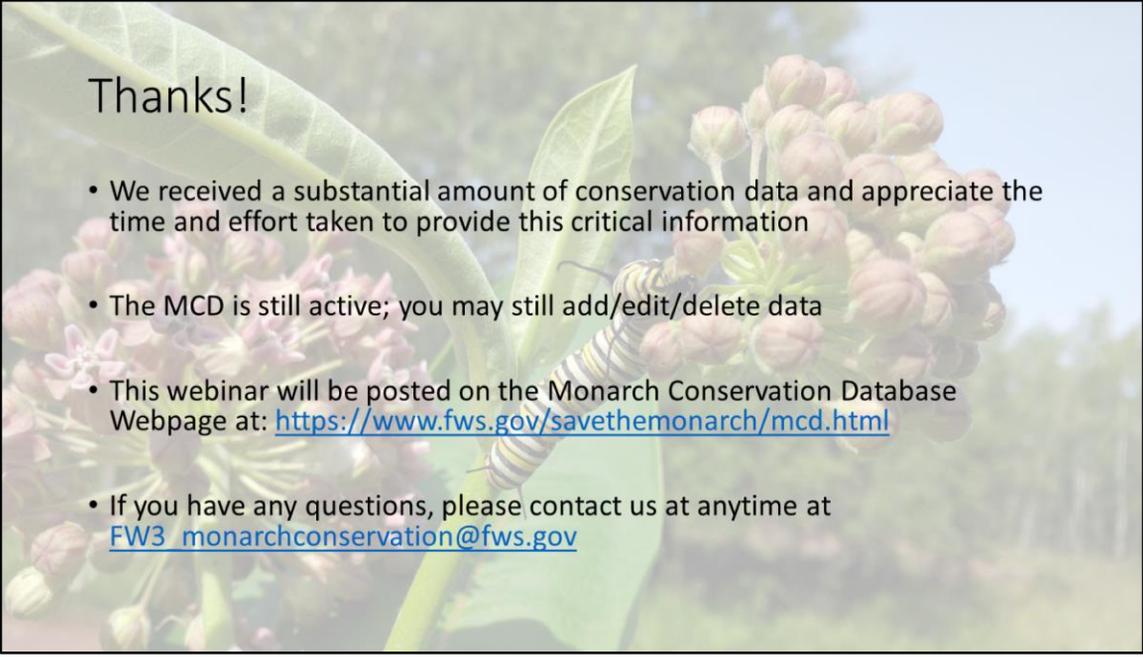
Demonstration



Things to Keep in Mind

- Results are de-normalized; there may be multiple rows corresponding to each plan, site, or effort depending on your query.
- For most users, columns available when querying all records will be restricted; columns are unrestricted when querying among records owned or editable by the user
 - This was done to protect other users' private information
 - If there is information you would like for all records, please email me at FW3_monarchconservation@fws.gov and we will discuss with internal IT security
 - We will not provide any information that can be used alone to link to a specific individual
- You can't "save" queries, but you can bookmark the URL and your query will effectively be saved

- A few important points to reiterate before we wrap-up and open the floor to questions:
 - Be aware that the results will be de-normalized which means you may have multiple rows corresponding to one plan, site, or effort. This could cause you to double count.
 - You will only be able to see and query by all of the fields for data that you are the owner or editor of; for all other data, the fields you have access to will be restricted
 - However, if there are fields that you would like access to, please let me know by emailing FW3_monarchconservation@fws.gov and I will run it by our IT security team; we will not and cannot provide any information that can be used alone to link to a specific individual
 - Lastly, building queries can be a process and while you can't necessarily save your queries, you can bookmark the page and your query will effectively be saved



Thanks!

- We received a substantial amount of conservation data and appreciate the time and effort taken to provide this critical information
- The MCD is still active; you may still add/edit/delete data
- This webinar will be posted on the Monarch Conservation Database Webpage at: <https://www.fws.gov/savethemonarch/mcd.html>
- If you have any questions, please contact us at anytime at FW3_monarchconservation@fws.gov

- Thanks again for your interest in the MCD and taking the time to provide and query data. This webinar will be posted on the MCD website and, as always, if you have any questions, please contact me at FW3_monarchconservation@fws.gov. Now we will open up the floor to any questions or comments you may have. Thanks!