



# Exotic Moth Data Collection

## User Manual



Photo Credit: Flickr and Wiki Commons

Program: Exotic Moth (ExM)

Application: ArcGIS Field Maps

Host: USDA-MRP GIS Enterprise (Portal)

URL: <https://maps.mrp.usda.gov/arcgis/>

Map Title: PPQ ExM Trapping 2024 Field Map

**\*\* Refer to the "[Mobile Data Collection Tools](#)" public webpage for all training support.**

*2024 Disclaimer: Training techniques or workflows held within are designed as basic job aids. Mobile collection tools and technology used are constantly being improved upon. End users should consult with management for current workflows and standards.*

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End User Tools Request links: [Support Request \(End User Tools\)](#) [Mobile Device Request](#) [Training Request](#)  
Web GIS Contact: [WebGIS.Connect@usda.gov](mailto:WebGIS.Connect@usda.gov)

## Overview

**\*\*There are no data collection changes for the 2024 application from the previous year.\*\***

This document provides guidelines for conducting electronic data collection for the Exotic Moth (ExM) program using the [ArcGIS Field Maps](#) application on mobile devices. The application was developed to reflect program specifics and is intended to replace paper surveys.

## ArcGIS Enterprise (USDA-MRP GIS Portal)

### Sign In

*Requires Wi-Fi connection and eAuthentication Level 2 User ID and Password.*

You will need to sign into ArcGIS Enterprise (USDA-MRP GIS Portal) to locate maps shared with your USDA-MRP GIS Portal user account. Once signed in, ArcGIS Field Maps will retain your sign in for offline data collection.

Locate the ArcGIS Field Maps application icon and tap to open it. (Figure 1)



Figure 1. ArcGIS Field Maps application icon

Field Maps presents with sign-in options for “Sign in with ArcGIS Online” or “Sign in with ArcGIS Enterprise”.

Tap “Sign in with ArcGIS Enterprise”. (Red box in Figure 2)



Figure 2. ArcGIS Field Maps Sign in screen

On first opening the application, you will have to add the ArcGIS Enterprise URL. Once established, your device saves this as a sign in option. The red box in Figure 3 indicates a saved URL and the yellow box in Figure 3 highlights the option to “Specify a New URL”.

### Official Data Collection

USDA-MRP GIS Production Portal URL: <https://maps.mrp.usda.gov/arcgis>

### Training Maps and Practice

**\*BE SURE TO ENTER REAL DATA IN PRODUCTION MAPS ONLY!!!\*** Sign out when training exercises are completed to avoid accidental data entry when performing “real” survey activities.

USDA-MRP GIS Stage portal: <https://maps-stg.mrp.usda.gov/arcgis>

### Specify a New URL

If choosing to “Specify a New URL”, this is entered manually using the keyboard. Check it carefully and then tap “Ok”. (Figure 4)

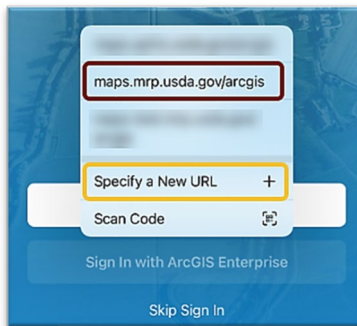


Figure 3. Sign in with ArcGIS Enterprise options



Figure 4. Specify a New URL

Next you may be asked to confirm “usda.gov” to Sign In. Tap “Continue”. (Figure 5)



Figure 5. Confirm usda.gov sign in

Again, choose the Enterprise login by tapping on the blue “eAuth Account” button. (Figure 6)

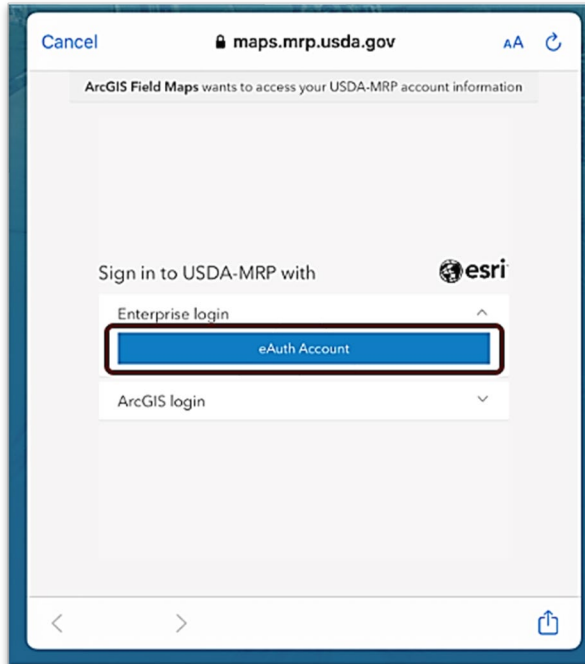


Figure 6. Sign in to USDA-MRP with eAuth Account

Tap to select from the user type options listed: Customer, USDA Employee/Contractor, or Other Federal Employee Contractor. (Figure 7)

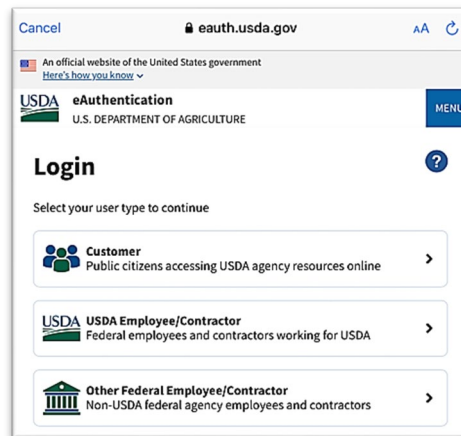


Figure 7. Select eAuthentication User Type

## MobileLinc

CEC IT is deprecating the MobileLinc credentialing using the Entrust application. For new or recently re-enrolled mobile devices the Certificate Based Authentication (CBA) process uses the [USDA Work Account](#) sign in option.

Select MobileLinc. (Figure 8)

Next select between MobileLinc+Microsoft or MobileLinc+Entrust. Most likely the correct option is: **MobileLinc+Entrust** (Figure 9)



Figure 8. eAuthentication options



Figure 9. MobileLinc Microsoft or Entrust

Enter your User ID (eAuthentication user name) using the keyboard. Tap Log In with MobileLinc. (Figure 10)

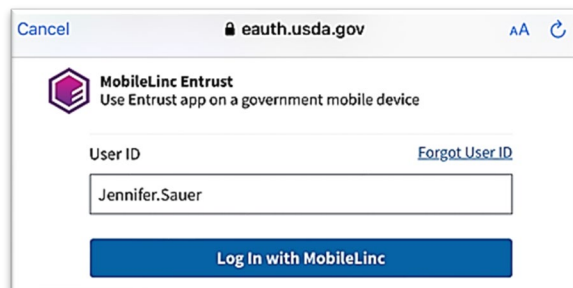


Figure 10. MobileLinc User ID & Log In

Tap on the banner that descends prompting that "You have pending actions". This will open the Entrust application for you to confirm the request. (Red box Figure 11)

If this banner disappears, open the Entrust application manually. Do not close the ArcGIS Field maps application.

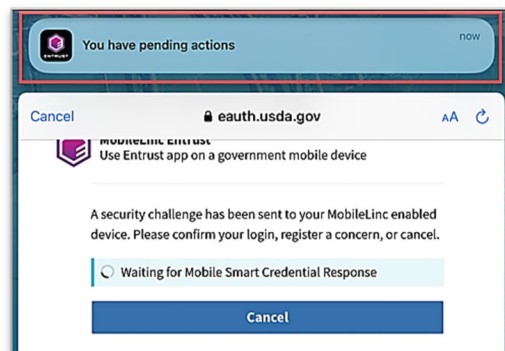


Figure 11. You have pending actions...confirm in Entrust

Once in the Entrust application, you will be prompted to enter the Identity PIN you set when configuring this credentialing method.

Enter your PIN and tap the “Allow” button.  
(Figure 12)

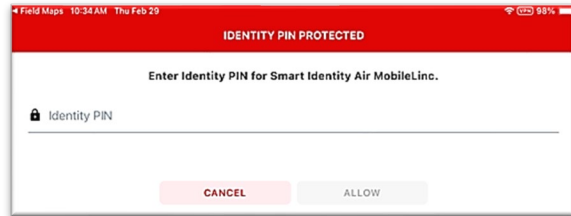


Figure 12. *Entrust Identity PIN*

Tap Confirm. (Figure 13)



Figure 13. *Confirm to authenticate*

Return to ArcGIS Field Maps.

If shown, tap Accept at the U.S. Government information warning message.

Locate your map and begin field data collection!

### USDA Work Account

CEC IT is deprecating this [MobileLinc](#) credentialing using the Entrust application. For new or recently re-enrolled mobile devices the Certificate Based Authentication (CBA) process uses the USDA Work Account sign in option.

Select USDA Work Account. (Figure 14)

Tap “OK” at the next screen to confirm.

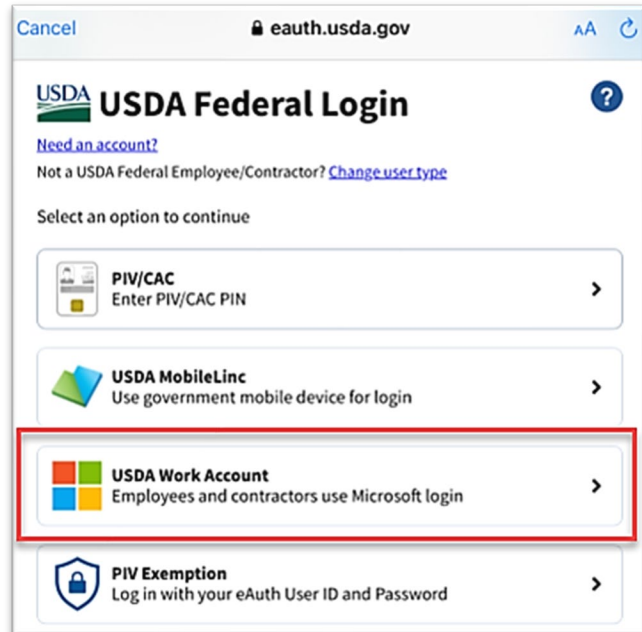


Figure 14. *USDA Federal Login*

Type in your Microsoft Sign In email.

Likely this is something like:

[First.Last@usda.gov](#)

Then tap “Next”. (Figure 15)

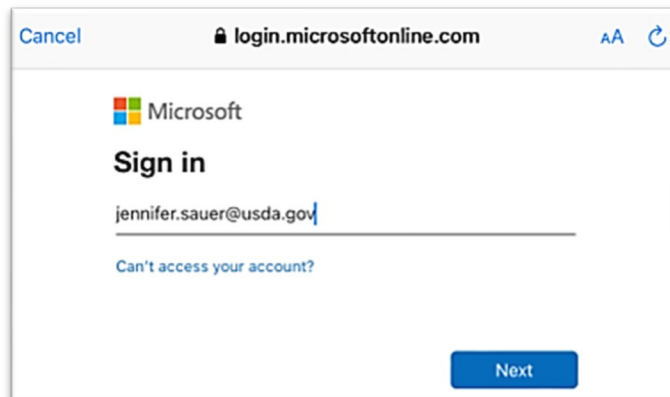


Figure 15. *Microsoft Sign in - Email*



You may need to tap and scroll to find the certificate listed with your name. Tap to select that line. (Figure 16)

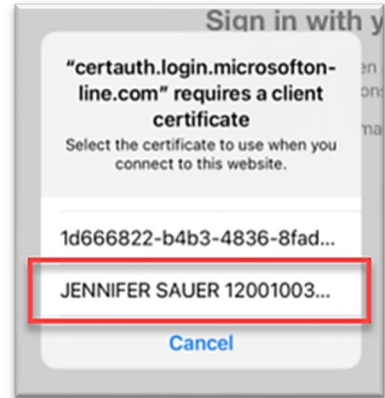



Figure 16. Select the certificate

ArcGIS Field Maps opens to the main map gallery. Locate your map and begin field data collection!

## Sign Out

To sign out of any environment, tap the profile icon  on the Maps page in the upper left, scroll down, and tap “Sign Out”. (Figure 17)

Tap “Sign Out” again to confirm the action. (Figure 18)

Then choose “Sign In with ArcGIS Enterprise” to enter the correct URL. For reminders on signing in, see [Sign In](#) section.

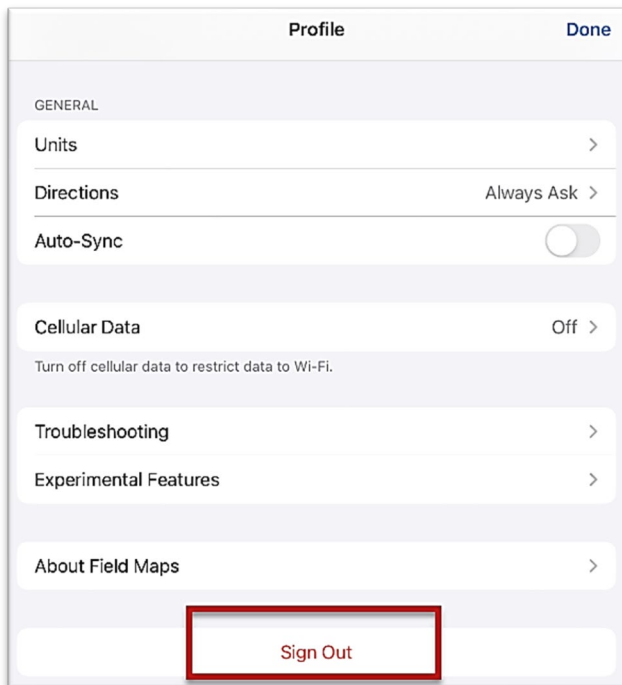


Figure 17. Profile Menu

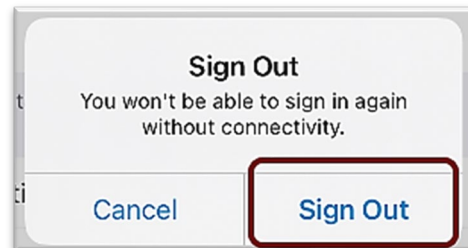


Figure 18. Sign out confirmation

## Disconnected Data Collection

The ArcGIS Field Maps application is specifically designed to operate in disconnected mode. An area of interest is downloaded to your device while connected to a Wi-Fi network. Then the device is disconnected from the internet and field data collection is performed. Once a reliable network connection is regained, the data is synchronized with the online map hosted in the USDA-MRP GIS Enterprise (Portal).

It is common for a pest program surveyor to download a map area for a season/year and continuously use it. This means daily sync of data collected in the morning (before start) to pull new data into the map view and in the evening (end of daily data collection) to push out data collected for the day on that device.

The diagram below (Figure 19) represents the workflow of the disconnected mode concept.

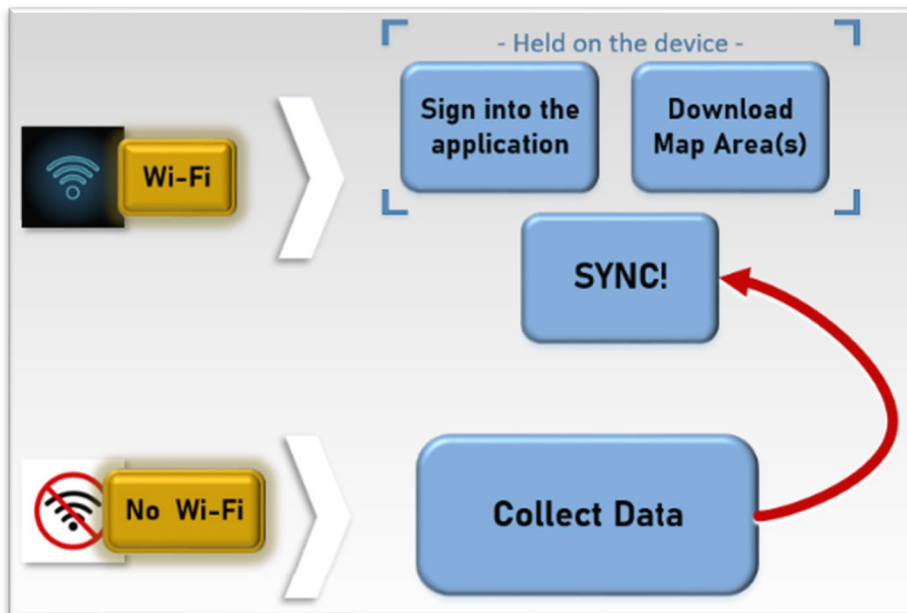


Figure 19. *Wi-Fi preparation and disconnected data collection*

Never assume you are prepared for offline data collection. ALWAYS perform a few tests in the parking lot before you go. For a sample set of steps, see the next section on [Before You Go](#).

## Before You Go

Be sure all is ready for field data collection in disconnected mode **before** you leave. This includes downloading and testing a map area and performing a [data sync](#).

## Download Map Area(s)

This step may be carried out or overseen by your supervisor or local GIS Specialist. If performing yourself, make sure of the appropriate Level of Detail and Area of Interest.

A strong Wi-Fi connection is key to success. For detailed steps, refer to the [ArcGIS Field Maps Getting Started Guide](#).

## Parking Lot Tests

From the Settings application on your device:

1. Turn Wi-Fi OFF (on a phone: also turn off Cellular Data)
2. Turn Location Services ON
3. Open the ArcGIS Field Maps app
4. Locate and open the offline map area:
  - a. Zoom in/out
  - b. Tap the add data button to be sure the data form appears to the left with GPS reading in blue (not red)
  - c. Tap "Cancel"
  - d. Then "Discard" that point

You have confirmed offline use. Now you are ready to head out to the field!

**If you do not see your map or it does not open as expected or you are not signed in...  
Go back inside, connect back to Wi-Fi, and try again.**

## Collect Data

**Reminder!** [Synchronize your map](#) at the beginning and the end of each workday.

ArcGIS Field Maps automatically opens in the last map view used. If the [Before You Go](#) steps were performed, opening ArcGIS Field Maps should also open the previously downloaded map area. Tap the back arrow at the top left of the screen to locate the appropriate downloaded map area for data collection, if needed.



**\*\*Always follow program survey protocol to determine suitable locations for performing surveys.**

## Place a Trap

When? The first data entry in the *ExM Trap Sites 2024* layer establishes a location for the trap site.

All future visits to this site are considered [trap activities](#) and are recorded in the ExM Trap Activities table associated with that location.

Reference layer names may vary, depending on the state collecting data.

1. Tap the layers icon  and tap the toggle switch to the right of the desired layer name to make additional layers visible for data entry. A blue toggle switch indicates the layer is visible. (Figure 20)
2. Stand near the survey location.
3. Tap the blue icon with the white plus sign  located in the lower-right corner of the screen and choose a Trap Type from the list on the left. (Figure 21)
4. Fill out the main data form.  
\* Asterisks indicate mandatory fields.  
Optional fields should be completed following survey protocol.  
**Drop-down lists are *auto-complete* enabled. Start typing to narrow options quickly.**  
Verify the *Install Date* entry is correct.
5. Review your entered data carefully prior to submitting the form.
6. Tap the **Submit** button on the upper-right corner of the form to save the new survey record.

### NOTE:

If the Submit button fails, you have not completed all required fields or GPS accuracy requirements were not met.

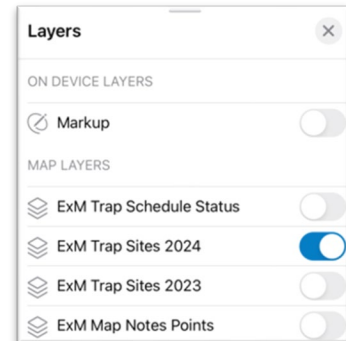


Figure 20. *Exotic Moth Map Layers menu*

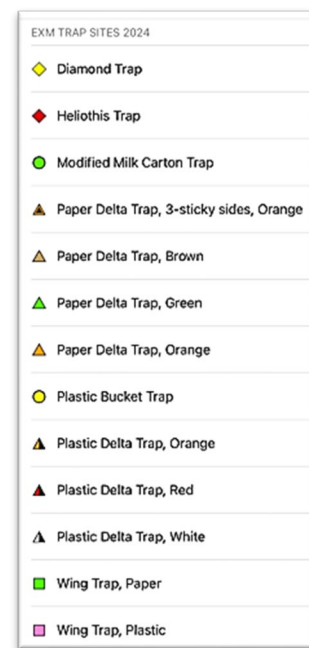
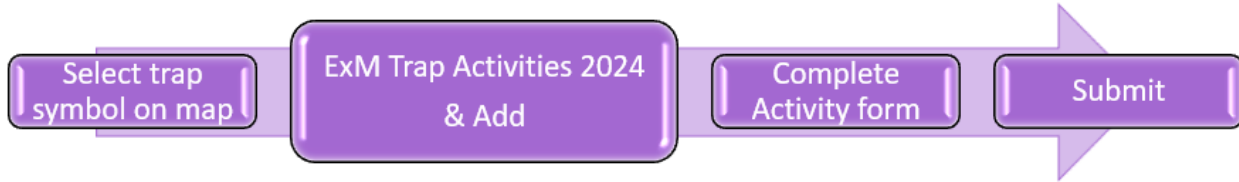


Figure 21. *Exotic Moth Trap Sites*

## Trap Activities

Once a trap is placed, an action performed on any future visit is considered a Trap Activity. When a trap is removed, missing, or relocated, you must record the appropriate trap activity.



1. Locate the appropriate trap site and tap its symbol on the map. When selected, the point's symbol is highlighted in cyan, and the *ExM Trap Sites 2024* data form opens on the left side of the screen.

Select carefully (by zooming in) and verify the point selected is correct by reviewing the *Trap ID* or other unique field.

2. Scroll down the *ExM Trap Sites 2024* data form and tap "ExM Trap Activities 2024 " or tap the link icon. (Figure 22)



Figure 22. Activities link

3. Tap the blue Add button to add a new activity. (Figure 23)

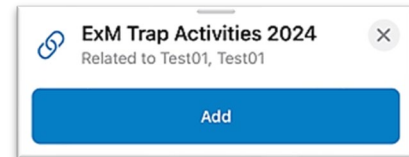


Figure 23. Add a new activity

4. Fill out the activity data form.  
\* Asterisks indicate mandatory fields.  
Optional fields should be completed following survey protocol.  
Verify the *Activity Date* field is Today.
5. Verify all is correct and tap **Submit** in the upper right corner of the screen to complete the activity entry.

**NOTE:** Choosing "Remove" as the activity type does not remove the symbol on the map but records a final activity of remove on the historic data record for that site.

## Trap Schedule Status

Defaulted to OFF, the ExM Trap Schedule Status layer is updated nightly to indicate trap sites that are:

- "Current" - trap servicing is up-to-date
- "Due" - trap needs servicing
- "Inactive" - trap is no longer present at site

When the layer is enabled, the trap status symbols display on top of the ExM Trap Sites layer on the map. (Figure 24)

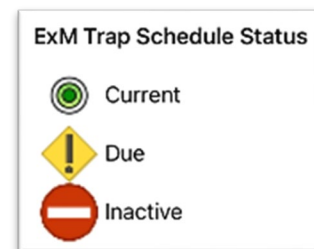
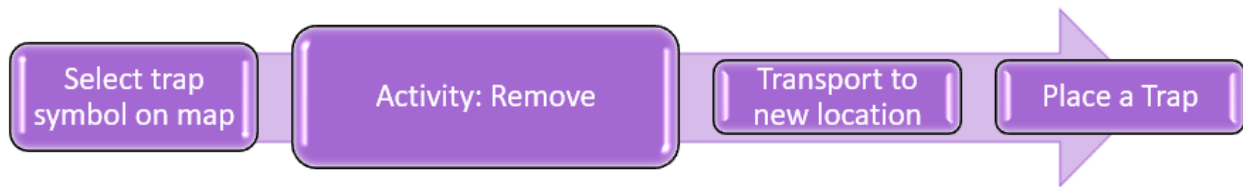


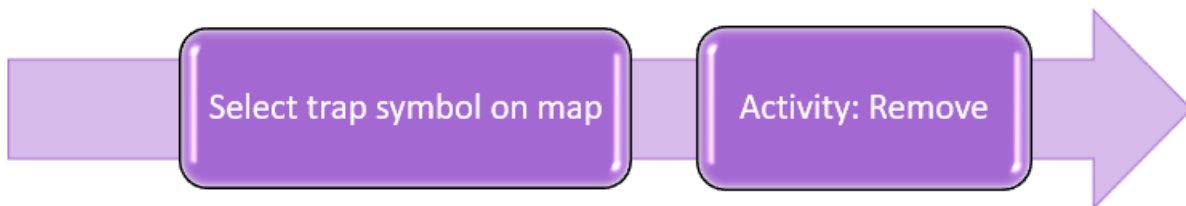
Figure 24. ExM Trap Schedule Status legend

## Relocate a Trap



1. Tap the trap symbol on the map to select it. The data form opens on the left.
2. Enter a [Trap Activity](#) of "Remove".
3. Transport the trap to its new location.
4. Complete [Place a Trap](#) steps.

## Remove a Trap





1. Tap the trap symbol on the map to select it. The data form opens on the left.
2. Enter a [Trap Activity](#) of "Remove".

**NOTE:** Choosing "Remove", "Remove (Missing)", or "Remove (Inaccessible)" as the activity type does not remove the symbol on the map but records a final activity of remove on the historic data record for that site.

## Map Notes Points

Use the “ExM Map Notes Points” layer to record hazards and other information. Be aware that this is a *shared* layer and other surveyors will have access to your notes.

**\*\*Always follow program survey protocol to determine suitable locations for performing surveys.**

1. Tap the layers icon  and tap the toggle switch to the right of the desired layer name to make additional layers visible for data entry. A blue toggle switch indicates the layer is visible. (Figure 25)
2. Stand near the location for the map note.
3. Tap the blue icon with the white plus sign  located in the lower-right corner of the screen to add a new map note.
4. Scroll down, if needed, and choose the Map Notes Type from the list on the left. (Figure 26)
5. Fill out the data form.  
\* Asterisks indicate mandatory fields.  
Verify the *Note Date* is Today.
6. Review your entered data carefully prior to submitting the form.
7. Tap the **Submit** button on the upper-right corner of the form to save the new map note.

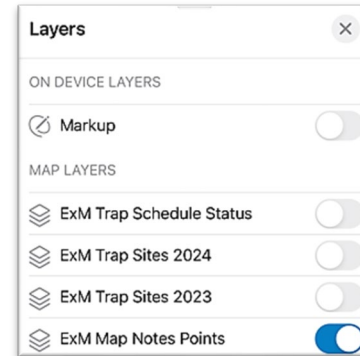


Figure 25. Exotic Moth Trapping Map Layers menu

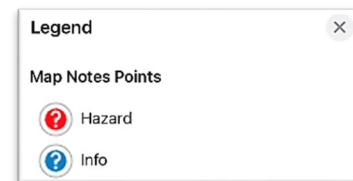


Figure 26. Exotic Moth Map Notes Points Legend

NOTE: If the Submit button fails, you have not completed all required fields or GPS accuracy requirements were not met.

## Daily Data Sync

**\*\*Sync your data first thing in the morning AND last thing at night – DAILY!**

This process both pushes your data collection out and brings in other edits to your map. Be sure you are connected to a strong Wi-Fi network.

If you are unable to sync your device, ask for help right away. Your data may be at risk if you delay synchronizing your device.

Be sure you are connected to a strong Wi-Fi network.

Be sure **Auto-Sync is OFF**. Tap the sync button  and then toggle to disable Auto-Sync. (Figure 27)

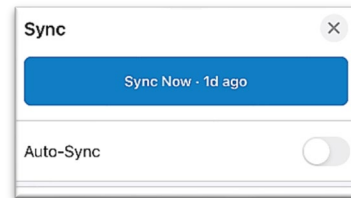


Figure 27. Auto-Sync toggled to OFF

You may choose the sync icon from within a map area. Tap the sync icon at the top right of the map. (Figure 28)

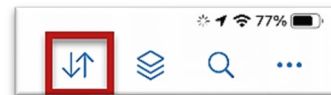


Figure 28. Icon menu within the map

OR

You may also choose to sync by choosing the ellipsis menu found on each Offline Area. You will have the option to Sync, Rename, or Remove Area. (Figure 29)

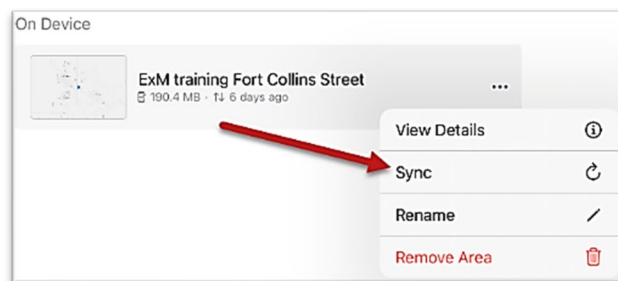


Figure 29. Offline Area menu



## Getting Help

### APHIS PPQ

Before requesting technical support, be prepared with detailed information, including the name of the map, and error messaging experienced. Be as specific as possible. Include screenshots, any troubleshooting you have performed, and indicate the type of device (iPad, laptop, phone, etc.).

For APHIS PPQ users, if you are having issues with the iPad, laptop, Wi-Fi settings, or issues dealing with installing software, open a ticket with CEC IT. CECHelpDesk@usda.gov or 877-873-0783

If you need technical support or help using the ArcGIS Field Maps application, follow this order:

1. Your field supervisor
2. Local GIS Specialist that supports your area
3. Email [WebGIS.Connect@usda.gov](mailto:WebGIS.Connect@usda.gov)

### Cooperators & Other Nonfederal Users

Contact your State Plant Health Director's office for assistance.

### All Training Resources

As new applications and programs are supported, newly created training documents and self-paced training videos are shared on the APHIS public facing website:

[Mobile Data Collection Tools](#)

Bookmark this site. Visit often. Provide feedback and ideas freely to the End User Tools Group.