EXPLORING THE MORA WATERSHED: EXERCISE 3B

Field Data Collection with Collector for ArcGIS

Using a GPS-enabled tablet or smartphone to collect data in the field.

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FIELD DATA COLLECTION WITH COLLECTOR FOR ARCGIS

Time to complete

Approximately 50-60 minutes in the classroom
Approximately 50-60 minutes in the field
An Internet Connection is needed for the classroom portion

In this guided tour we will be using ArcGIS Online and Collector for ArcGIS to:

1) Prepare a map and data for field data collection
Collect features in the field with a tablet or smartphone and the Collector for ArcGIS app
3) Add field data collected features to a web map

Introduction

Tablets and smartphones are increasingly used to collect field data for use in geographic information systems. There are many map and form-based apps that will allow you to input field data and geolocate it using the tablet or phones internal GPS or an external GPS receiver. In this exercise, you will use ESRI's Collector for ArcGIS app. This works on tablets or phones, Android or iOS. It integrates seamlessly with ArcGIS Online, yet allows for work to be done offline, when no internet connectivity is available. Collected data can be synched with ArcGIS Online once internet connectivity is resumed.

Before going to the field, data are created or prepared in ArcGIS Desktop. An ArcGIS Online Map is then created and shared for the project. In this exercise, the data have already been prepared in ArcGIS Desktop and uploaded to ArcGIS Online. You will set up a data collection form and create and share a map in ArcGIS Online for filed use.
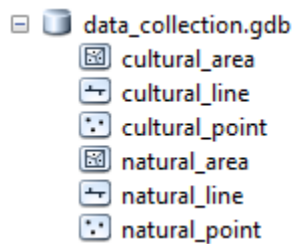
Let's Get Started: data preparation

Before we go to the field and collect data, you must prepare your data for collection and publish a web map that can be loaded into the Collector app for field use.

Part 1. Prepare data in ArcGIS Desktop. (Note: This portion has been done for you)

Prior to working in ArcGIS Online, ArcGIS Desktop must be used to create empty datasets that will be populated in the field. It is important to think about the type of features you will collect along with the descriptive information about each one needed. This is done in ArcGIS Desktop by creating a feature class for each geometry type (point, line. or polygon). Each feature class requires an attribute table with a field for each descriptive element you wish to include.

For this exercise, you will collect natural and cultural features in each geometry. A basic set of attributes will be collected. These include the name of the feature, a brief description, and a category or type description.

data_collection.gdb
    cultural_area
    cultural_line
    cultural_point
    natural_area
    natural_line
    natural_point

Field Name	Data Type
OBJECTID	Object ID
SHAPE	Geometry
Name	Text
Description	Text
Type	Text

Click any field to see its properties.

Field Properties

Alias	Type
Allow NULL values	Yes
Default Value	
Domain	Type
Length	25

Import...

Note that the Type field in the natural features includes a Domain, which allows the field to include a pick list of allowable descriptions. In this case, for Type, you are limited to Biophysical or Geophysical.

Coded Values:

Code	Description
1	Biophysical
2	Geophysical

Once the features are created, they are published as a service to ArcGIS Online, where they can be accessed for use in a web map.
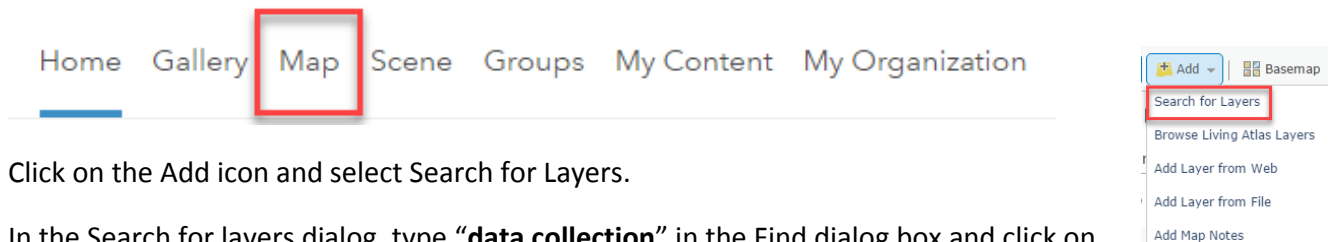
Part 2. Prepare data in ArcGIS Desktop.

You will now create a map in ArcGIS Online that will be used for storing and managing the features you collect with the Collector app.

Step 1. Create the base map.

Log into ArcGIS online with your assigned student account.

Select Map from the menu bar at the top of the ArcGIS Online page.

Home   Gallery   Map   Scene   Groups   My Content   My Organization

Add ▼   Basemap
Search for Layers
Browse Living Atlas Layers
Add Layer from Web
Add Layer from File
Add Map Notes

Click on the Add icon and select Search for Layers.

In the Search for layers dialog, type "**data collection**" in the Find dialog box and click on GO.

Find the **data_collection_map_team_x** file (x = your assigned team number) and select Add. Select

Find: data_collection   GO
In: My Organization
☑ Within map area
8 Results Found

Caldera_Geology
by rdongoolsen_NMHU   Add

Jemez River
by rdongoolsen_NMHU   Add

Jemez_River_Climbing_Spots
by rdongoolsen_NMHU   Add

ClippedNMRoads
by rdongoolsen_NMHU   Add

DogHeadDataCollection
by mking63_NMHU   Add

data_collection_map
by jpzebrowski_NMHU   Add

data_collection_map_team_1
by jpzebrowski_NMHU   Add

NMVegetationTreatmentsMarch2017
by kwithnall_NMHU   Add

DONE ADDING LAYERS

Six feature classes will be added to the map, three each for natural and cultural features, one in each geometry, point, line, and polygon.

Click on the Add icon again, find the **Mora_Watershed_HUC_08** feature class, and add it to the map

Zoom the map so the Mora watershed fills the map display.
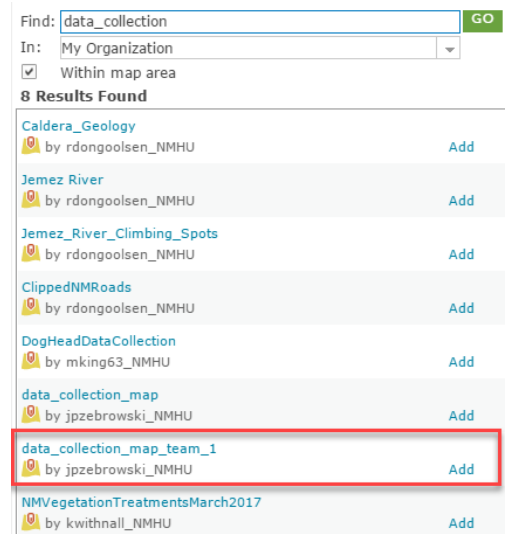
Select Save as and save your map with the following name: *Data Collection Team X_xyz* (*x* = your assigned team number, *xyz* = your initials). For tags, type **data collection**, **Mora watershed**. For the summary, type **Map for storing natural and cultural features collected in the Mora watershed**. Save it in your student account folder.
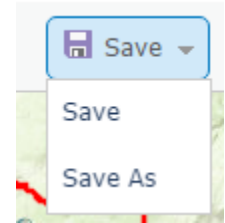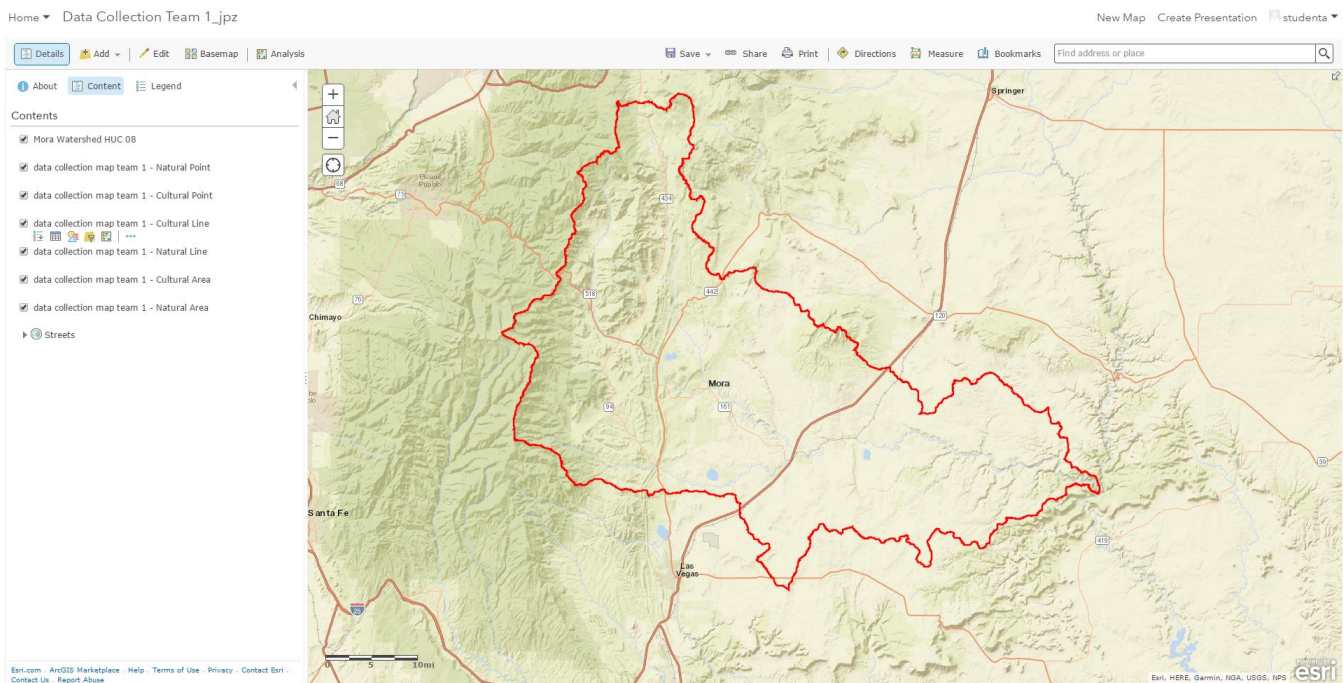

Your map should look something like this:

Step 2. Configure the data collection form.
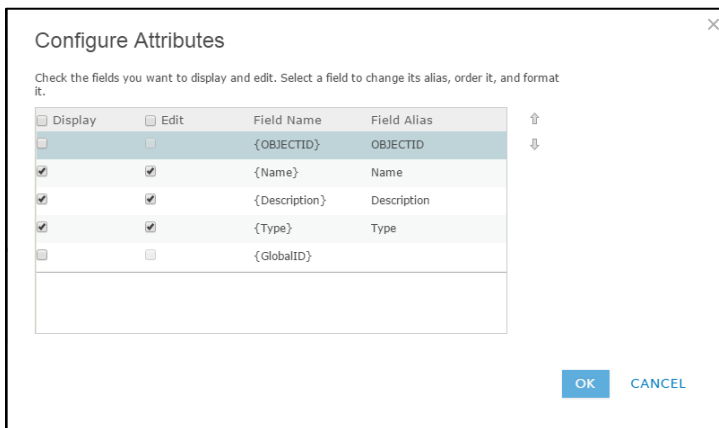
You will now configure pop-up to create a data collection form for the Collector app. The map's pop-up options determine what fields are available to be viewed and edited in the Collector app.

Select the More Options tool next to the first data collection layer in your map's table of contents.

Choose Configure Pop-up.

Ensure the Show Pop-ups box is checked.

Select Configure Attributes. Make sure the Display and Edit check-boxes for Name, Description, and Type are checked. These are the only boxes that should be checked. Then select OK.
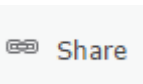
Explore, but do not change, the other options in the Configure Pop-up dialog. Select OK.

Check the Pop-up configuration for the other data collection layers to make sure they are the same as this one.
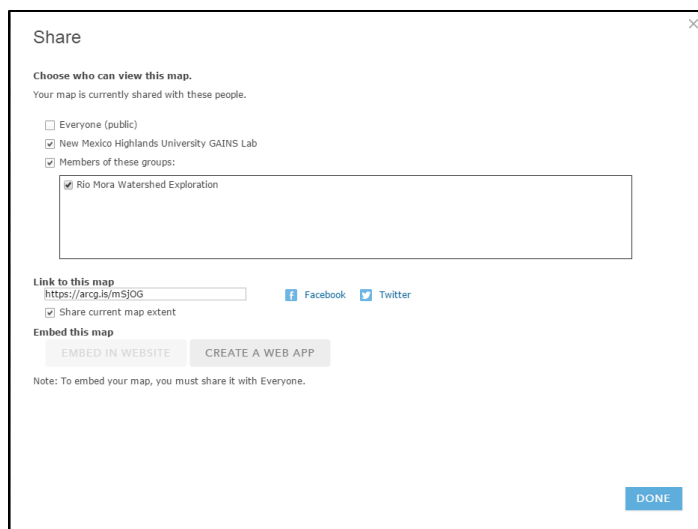
Save the map.

Step 3. Share the map.

Now you need to share the map and adjust some setting to make it available for use in the Collector app.

Select from the top menu.

Select New Mexico Highlands University GAINS Lab and Rio Mora Watershed Exploration. Then select Done.

Save your map.

Now you will adjust some settings:

Click the pull-down arrow next to Home on the top left menu. Then select My Content.

Select view item details from the pull down menu next to the name of your map.

Select the Settings tab.

Check the box next to **Prevent this item form being accidentally deleted** and select Save.

Ensure **Enable offline mode** is checked.

Uncheck the **Routing** and **Measure Tool** under **Application Settings**.

Save the Web Map Settings and the Application Settings.

Return to the map view and save the map.

Congratulations, you have now prepared a map for online and offline use in the Collector for ArcGIS app.

Part 3. Collect data using Collector for ArcGIS.

Step 1. Download and Install Collector for ArcGIS on your Phone or Tablet.

Collector is available for Android and Apple iOS operating systems. On your mobile device, go to your preferred app download site (e.g. Google Play Store, Apple App Store) and download and install Collector for ArcGIS.

Step 2. Prepare for data collection.
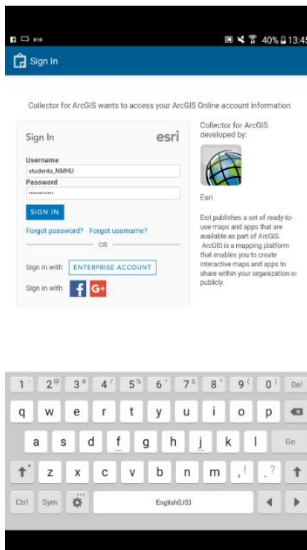
Open the Collector for ArcGIS app on your device and sign in using the appropriate ArcGIS Online user account. Make sure you are still connected to the internet.

After you log in, a list of maps available for you to download will appear. Select the Download option for the desired map.
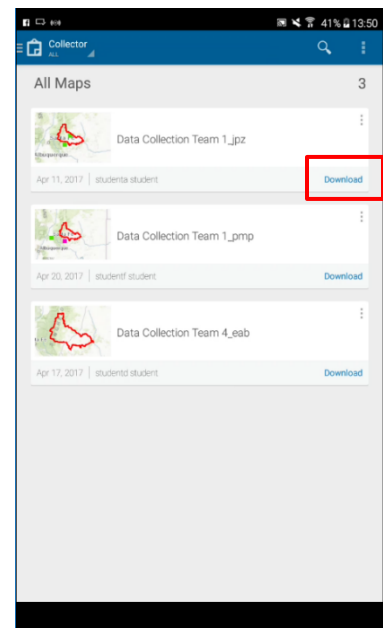
You will now be presented with the option to choose a basemap. Select Download a new basemap, topographic.
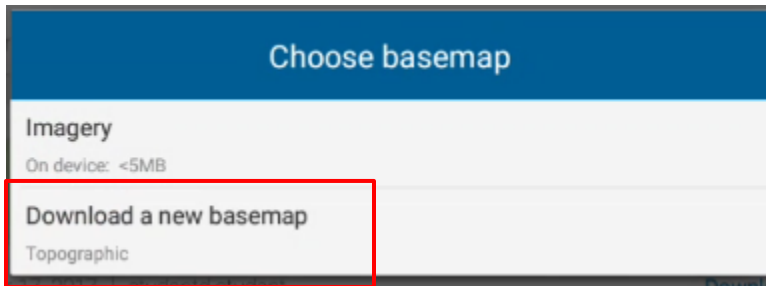

The next step is to choose your work area. You can zoom in by using two fingers on the screen and moving the fingers closer together or farther apart. In this case, keep the default work area and select Choose Mpa Detail.
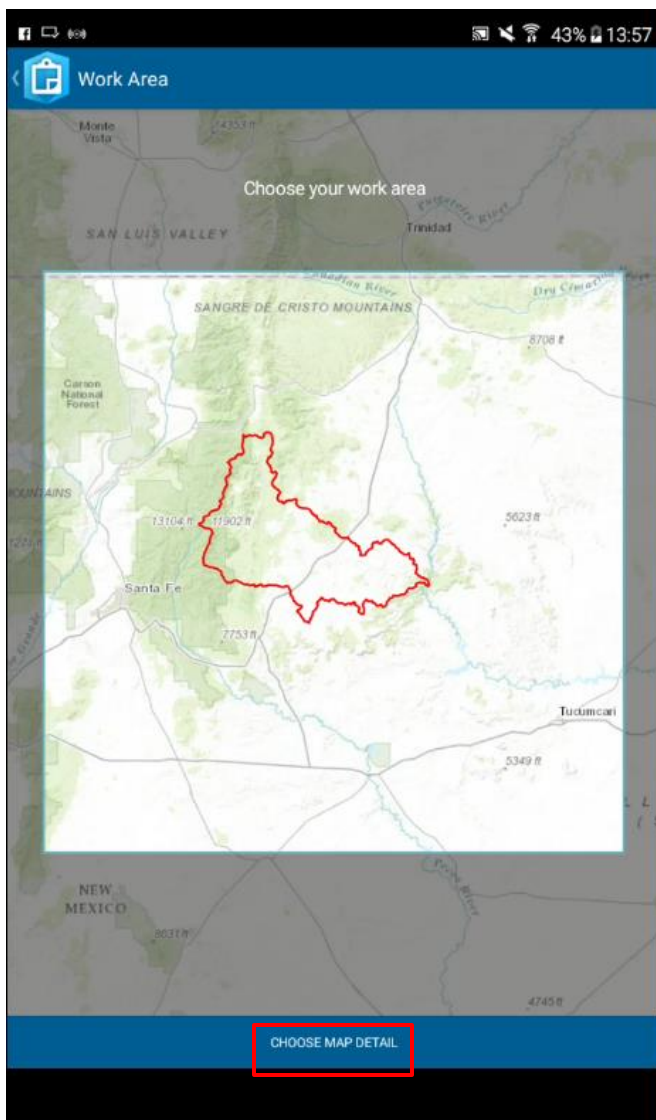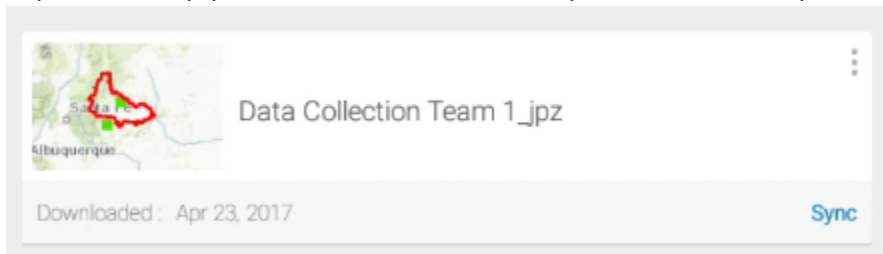
Zoom to the "Metro level of detail and select Download.
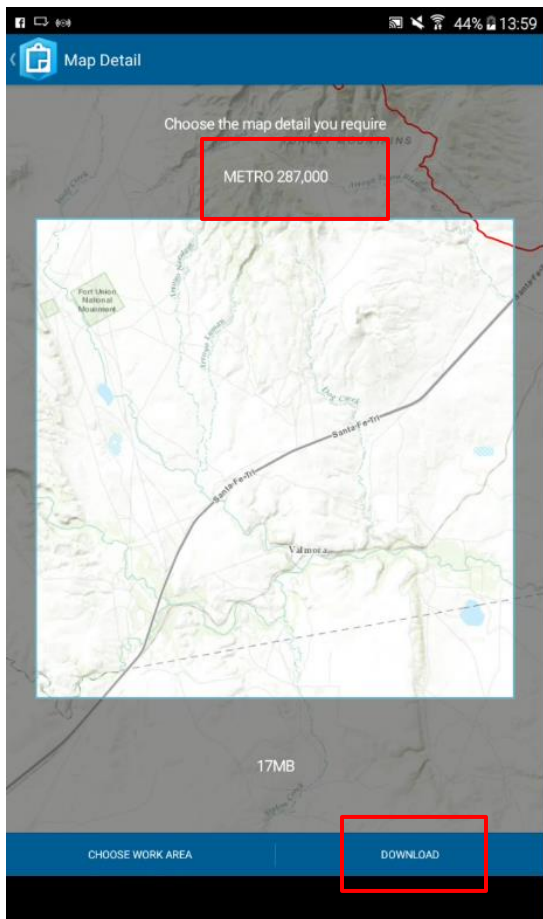
The map will download to your device. Once the download is complete, tap the word Collector in the upper left corner of the screen and choose On Device.
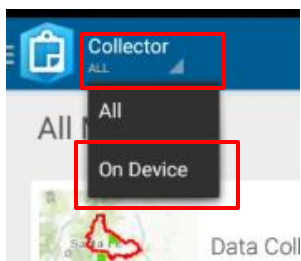
Tap on the map you downloaded and it will open and center at your current location.

The map is probably zoomed in past the appropriate level of detail. Zoom out until the map is a little clearer.
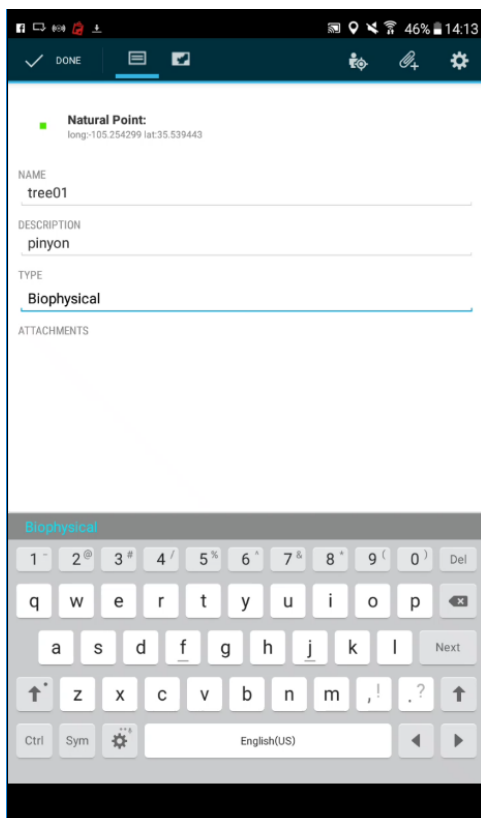
Step 3. Collect features.

You are now ready to collect data. Try practicing collecting data at your current location. You can collect data even when you are away from an internet connection. The data will be synchronized with your online map later.

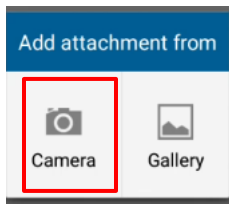From the menu bar, tap the plus sign ![plus]. This will open the Collect a new feature dialog. Tap on the desired feature type.
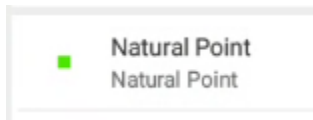
A form will open and you can start entering information

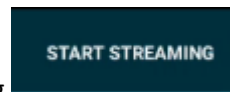Select the paper clip icon ![paperclip] to add an attachment, such as a photo from your device's camera.
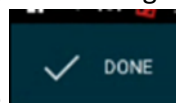
Select Done to complete the collection.
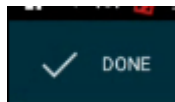
Practice capturing a line and an area feature. Select Start Streaming to begin your line or area collection. You can pause the streaming at any time during the collection, if necessary. Once you have

complete the collection of the feature, Select Done.

You can zoom in on your device to inspect the features you collected. The zoom level may be limited based on the level of detail you selected when you downloaded the map.

When you are finished collecting data, tap on the name of your map in the upper left corner of the screen.
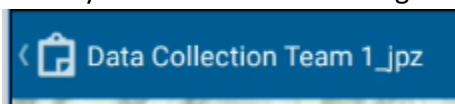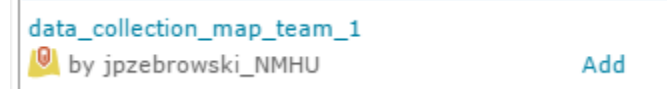

Select Sync.
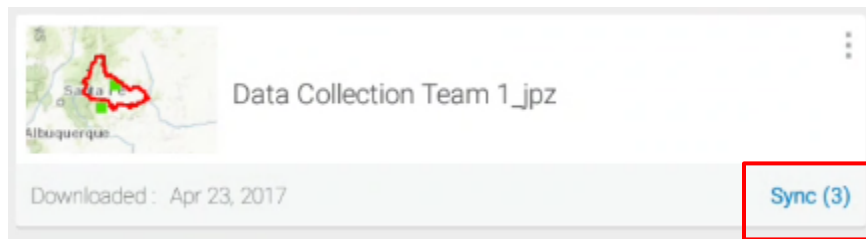
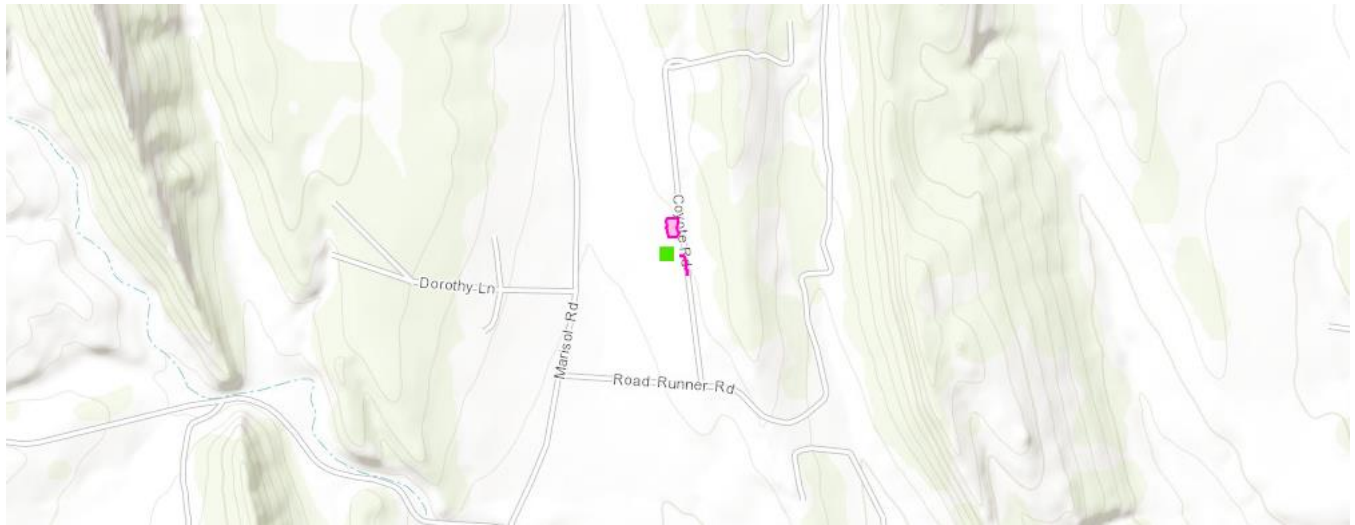The features you collected will be added to the ArcGIS Online data layer.

Exit the Collector app.

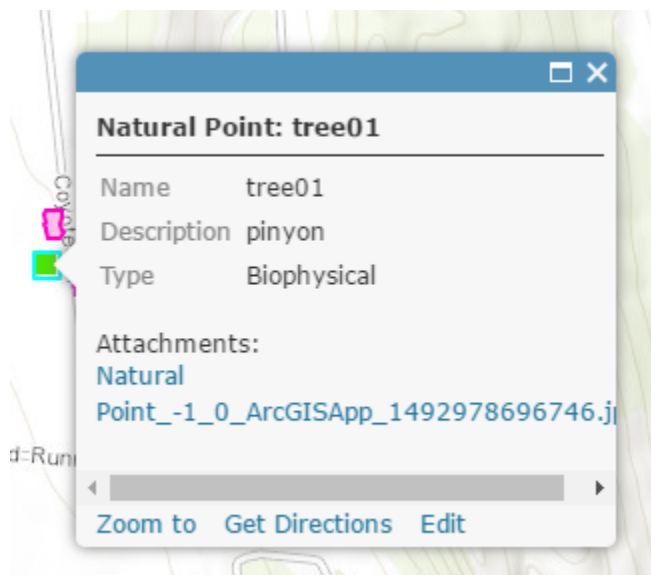## Part 4. Examine collected features in ArcGIS Online.

Log into ArcGIS Online and add your data collection layer to a new map.

Zoom to one or more of the features you collected.

Click on one of the features and examine the pop-up.

The attributes you collected will be present along with a hyperlink to the photo you collected. Clicking on the hyperlink will open the photo in a new browser tab. You can right click on the link and download the photo to your computer.

You can also edit the text in the pop-up by selecting Edit from the pop-up dialog and typing your changes.

Save your map, if desired, and log off ArcGIS Online.

Congratulations! You have created a map in ArcGIS Online and used it as a basemap for collection data in the field using Collector for ArcGIS.