

Invasive Species Early Detection Monitoring Protocol for Klamath Network Parks

Standard Operating Procedure (SOP) #6b: Post-Data Collection

Version 2025Jun09

Citation for this SOP:

Klamath Network. 2025. Standard Operating Procedure 6b: Post-Data Collection: 2025Jun09. Klamath Network Invasive Species Early Detection Monitoring Protocol. Unpublished National Park Service Standard Operating Procedure, Klamath Inventory and Monitoring Network, Ashland, Oregon.

Citation for the original protocol:

Odion DC, Sarr DA, Mohren SR, Klinger RC. 2010. Invasive Species Early Detection Monitoring Protocol for Klamath Network Parks. Natural Resource Report. NPS/KLMN/NRR—2010/227. National Park Service. Fort Collins, Colorado <https://irma.nps.gov/DataStore/Reference/Profile/2124867>

(Note that updated versions of the protocol are linked from the original IRMA record.)

To create a new version of this SOP, carefully follow the instructions for the KLMN (caves) SOP: Revising the Protocol (<https://irma.nps.gov/DataStore/Reference/Profile/2238840>). Use the Revision History Log below to describe the revisions:

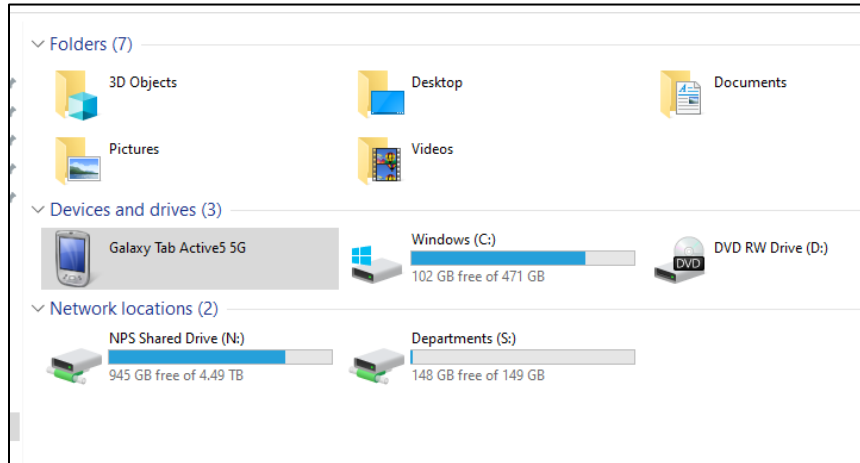
- Populate the top table of the revision history log, providing the previous version date, author of the change, a specific but concise description of the changes made, the footnote number associated with change details, and a new version date.
- In the bottom table, add a footnote and as much text as needed to describe in detail the reasons for and implications of the change.
- Replace en dashes with text.

Previous Version Date	Author of Change	Changes Made	Footnote #	New Version Date
02/2010	E. Edson	Updates to ArcPro section. New software capabilities.	–	9/28/2018
9/28/2018	Snyder	Updates in methods. Large-Scale revisions.	–	4/18/2025
4/18/2025	T. Berrian	Formatted to adhere to 508 compliance standards.	–	6/09/2025
–	–	–	–	–

Footnote #	Detailed Reasons for and Implications of the Changes
–	–
–	–
–	–
–	–

Data Backup in the Office

This step is not necessary if the field crew has been backing data up daily. Otherwise, connect the tablet to the computer. In Windows Explorer, find the tablet.

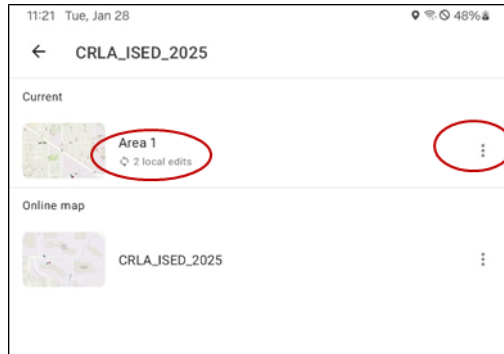


Navigate to Internal Storage\Android\data\com.esri.fieldmaps\files.

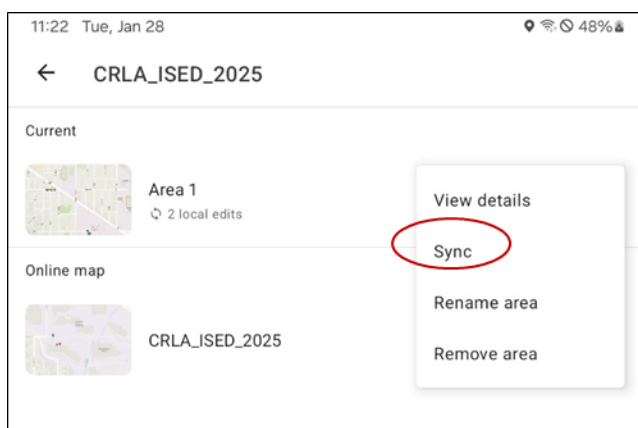
Copy this folder to N:\Monitoring\ISED\ISED_Data\Seasonal Data\YEAR\FieldMapsBackups and be sure to add the date to the folder name.

Syncing Data After Field Collection

Syncing can be done when the tablet has Wi-Fi access, and should be done as often as connectivity allows. Turn off *Airplane Mode*. If needed, log into *Field Maps*. The same username login for data collection must be used for data syncing. Find the correct map. It will list how many edits were made since the last sync. Click the three buttons to the right.

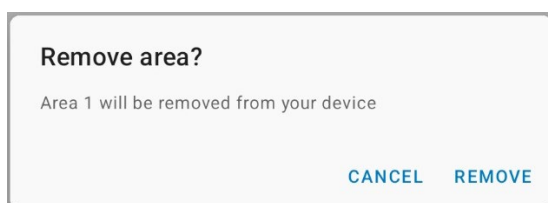


Select Sync.



Depending upon connectivity speeds and size of the dataset, this could take a while, but it is usually pretty fast. If an error message pops up, tap **Sync** again. When complete, the date of last sync will be displayed on the bottom left of the map icon. If an error pops up again, get in touch with the Data Manager.

If you accidentally try and remove the offline map before syncing has happened, a warning will pop up asking if you really want to do this!



Exporting and Downloading Excel Data

Once synced, the data from ArcGIS Online (AGOL) can be downloaded to allow quality checking.

Go to <https://www.arcgis.com/home> and sign in to AGOL.

Navigate to the *KLMN_ISED_2025* folder where the **feature layer** (e.g., *CRLA_ISED_DataEntry_2025*) resides and click on the name of the feature layer to open its item details.

☐	1-60 of 144	Table	Date modified
Title		Modified	
☐ CRLA_ISED_2025	Web Map	Jan 17, 2025	Preview ...
☐ CRLA_ISED_Reference_2025	Feature Layer (hosted)	Jan 17, 2025	Preview ...
☐ CRLA_ISED_DataEntry_2025	Feature Layer (hosted)	Jan 17, 2025	Preview ...
☐ CRLA_ISED_DataEntry_2025	Service Definition	Jan 17, 2025	Preview ...
☐ CRLA_ISED_Reference_2025	Service Definition	Jan 17, 2025	Preview ...

Go to the *Overview* tab, click on **Export Data**, and select **Export to Excel**.

CRLA_ISED_DataEntry_2025

OverviewDataVisualizationUsageSettings

Edit thumbnail

Add to Favorites

Description

Add an in-depth description of the item.

Layers

Invasive_Start_Stop

Point layer

Invasive_Point

Point layer

Data entry layers for collecting invasive plant data at Crater Lake National Park (CRLA) by the Klamath I&M Network in 2025.

Feature Layer (hosted) by asnyder@nps.gov_nps

Item created: Jan 17, 2025 Item updated: Jan 17, 2025 View count: 9

Export Data

Export to Shapefile

Export to CSV file

Export to KML

Export to Excel

Export to FGDB

Export to GeoJSON

Export to Feature Collection

Export to GeoPackage

Give the title of the export a useful name, preferably with the file type and date of export (e.g., *CRLA_ISED_DataEntry_2025_Excel_202501274*). This will prevent possible errors from if exporting the file multiple times in a season.

Export to Excel

×

Title:

CRLA_ISED_DataEntry_20250725_Excel_Export

Tags:

KLMN ×

CRLA ×

ISED ×

Invasive plants ×

Add tag(s)

Categories:

+ Assign Category ▾

Summary:

An Excel file with invasive plant data collected at CRLA in 2025

Save in folder:

KLMN_ISED_2025_Exports

▾

Cancel

Export

Supply the *Tags* and *Summary*, and then save it to the *KLMN_ISED_2025_Exports* folder. Click **Export**. Depending on network connectivity and size of the file, this can take a few minutes!

Once the export is complete, the Overview page will appear. Click the blue **Download** button on the right-hand side of the screen.

CRLA_ISED_DataEntry_20250725_Export

Overview

Usage

Settings

Edit thumbnail



Add to Favorites

End of trip Excel download

Microsoft Excel by asnyder@nps.gov_nps

Item created: Jan 17, 2025 Item updated: Jan 17, 2025 Number of downloads: 0

Edit

Download

Export

Update Data

Share

Metadata ▾

Description

Edit

Find the downloaded Excel file on your computer and make sure the worksheets are called *Invasive_Start_Stop_0* and *Invasive_Point_1*.

Data Validation

An R script (currently resides in N:_Archive_Special_Access\Archive-Monitoring\Invasives\YYYY\Validation) should be run on the Excel file to ensure that there are no missing or erroneous data.

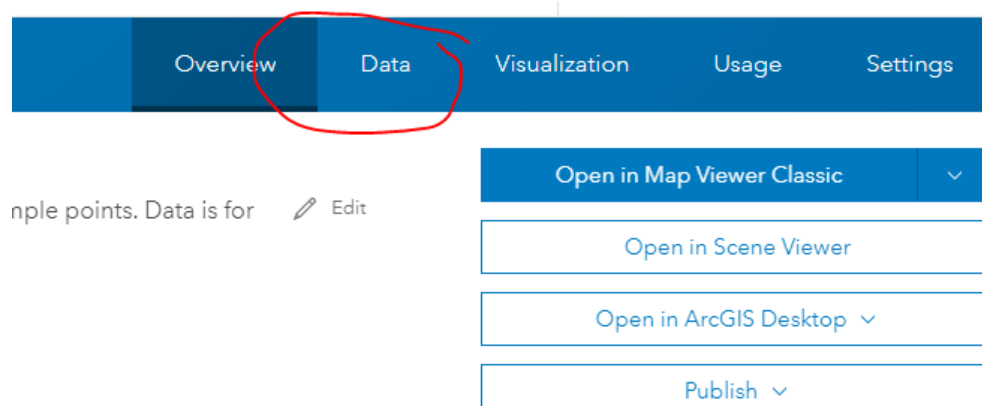
Steps needed for validation to occur:

- The exported data file needs to be in the same folder as the R script and should be called PARK_ISED_YEAR.xlsx.
- Species and Route lists need to be added to the same folder as the R script. These should be called:
 - PARK_ISED_SpeciesList.xlsx
 - PARK_ISED_RoutesList.xlsx
- Update line 13 to be the current working directory.
- The user should run the first 46 lines of the script. Then they should run line 50 (`user_input <- readline(prompt = "Enter the 4-letter Park Code: ")`) and the user should enter the park code for whichever park is being validated. Then they can run the rest of the script.

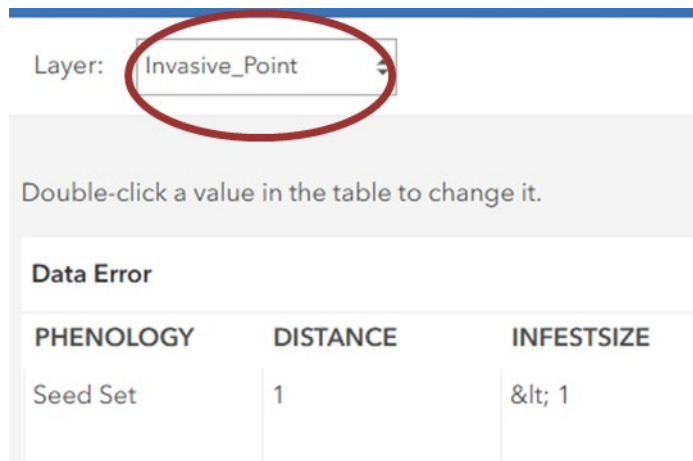
The results of the validation can be viewed in a file called *PARK_ISED_Validation_YYYYMMNN_HHMMSS.xlsx* (e.g. CRLA_ISED_Validation_20251116_143128. xlsx). If edits need to be made, they should be done in ArcGIS Online. There are at least two ways to edit data.

Editing data in the tables

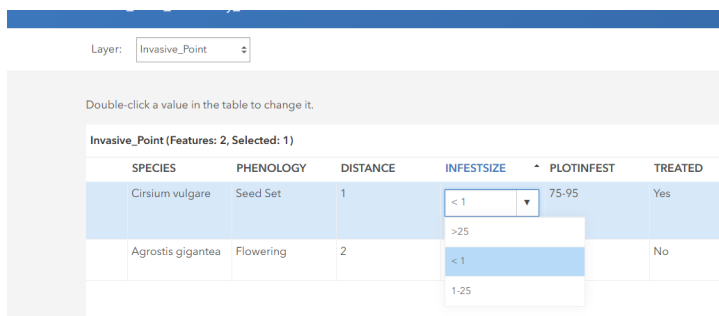
Go to the feature layer (e.g., CRLA_ISED_DataEntry_2025) to be edited. Click on **Data**.



Make sure the correct layer is selected.

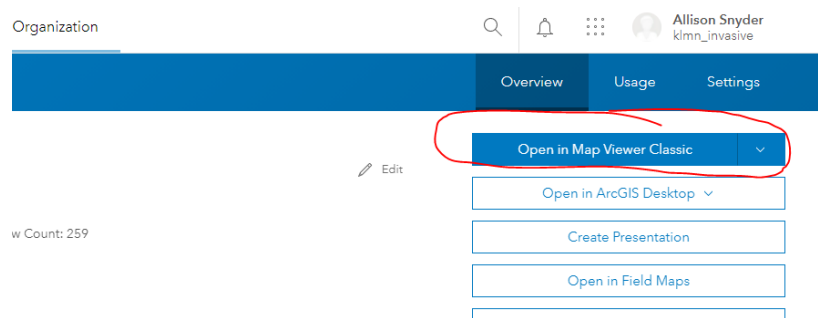


Then go into the table and edit records.



Editing Data in the Map

Select the Web Map (e.g., CLRA_ISED_2025). Click **Open in Map Viewer Classic**.



Find the point that needs to be edited and click on it in the map. This will open a window with point data. At the bottom of the window, select **Edit**.

Field	Value
SPECIES	Cirsium vulgare
PHENOLOGY	Seed Set
DISTANCE	1.000000
INFESTSIZE	< 1
PLOTINFEST	75-95
TREATED	Yes
VISITNOTES	
PARK_Unit	CRLA
Route_Comments	rough terrain
ExtraArea	No
ROUTE	Ball Field access
GPS_Unit	trimble
Species_NonPriority	

Zoom to Edit Get Directions

Edit the form as needed and click Close. Be sure to save the map.

The data should then be re-exported, downloaded, and validated until all errors have been addressed.

Once all edits are complete, and the latest Excel file has been downloaded, save it on the server in N:\Monitoring\ISED\ISED_Data\Seasonal Data\YEAR\ExcelExports.

Two columns should be added to the spreadsheets:

1. Add *Route_Final* to *PARK_Invasive_Start_Stop*. This field should mostly be updated from *MonRoute*. In some cases, however, the user entered "Other- put notes in Comments field" and then added the route to the Comments field. These should all be updated in *Route_Final* so that the route names are all in one column.
2. Add *Species_Final* to *PARK_Invasive Point*. This field should mostly be updated from *Species*. In some cases, however, the user entered "Other- add to NonPriority Species" and then added the species to the *Species_NonPriority* field. These should all be updated in *Species_Final* so that the species names are all in one column.

Then go back to AGOL and download data as a File Geodatabase.

Exporting and Downloading a Geodatabase

Navigate to the *KLMN_ISED_2025* folder where the **feature layer** (e.g., *CRLA_ISED_DataEntry_2025*) resides and click on the name of the feature layer to open its item details.

☐	1-60 of 144	Table	Date modified
Title		Modified	
☐ CRLA_ISED_2025	Web Map	Jan 17, 2025	Preview ...
☐ CRLA_ISED_Reference_2025	Feature Layer (hosted)	Jan 17, 2025	Preview ...
☐ CRLA_ISED_DataEntry_2025	Feature Layer (hosted)	Jan 17, 2025	Preview ...
☐ CRLA_ISED_DataEntry_2025	Service Definition	Jan 17, 2025	Preview ...
☐ CRLA_ISED_Reference_2025	Service Definition	Jan 17, 2025	Preview ...

Go to the **Overview** tab, click on **Export Data**, and select **Export to FGDB**.

The screenshot shows the ArcGIS Online interface for the item 'CRLA_ISED_DataEntry_2025'. The 'Overview' tab is active. The 'Export Data' menu is open, and the 'Export to FGDB' option is highlighted. The 'Export to FGDB' option is circled in red. The 'Export to FGDB' option is also circled in red. The 'Export to FGDB' option is also circled in red.

Give the title of the export a useful name, preferably with the file type and date of export (e.g., *CRLA_ISED_DataEntry_2025_FGDB_20250124*). Add *Tags* and a *Summary*, and then click **Export**.

Export to File Geodatabase

Title:

CRLA_ISED_DataEntry_20250725_FGDB_Export

Tags:

KLMN

CRLA

ISED

invasive plants

Add tag(s)

Categories:

+ Assign Category

Summary:

A file geodatabase with invasive plant data collected at CRLA in 2025

Save in folder:

KLMN_ISED_2025_Exports

Cancel

Export

The click on Download.

CRLA_ISED_DataEntry_2025_FGDB_202501274

OverviewUsageSettings

Edit thumbnail



Add to Favorites

Add a brief summary about the item.

File geodatabase by asnyder@nps.gov_nps

Item created: Jan 24, 2025 Item updated: Jan 24, 2025 Number of downloads: 0

Edit

Download

Publish

Update Data

Share

Metadata

Find the downloaded file on your computer, unzip it, and save the GDB to N:\Monitoring\ISED\ISED_Data\Seasonal Data\YEAR\GDBExports.

It is a good idea to open the layers in ArcGIS Pro to ensure that data appear spatially correct.

Similar to the Excel files, add the *Route_Final* and *Species_Final* columns and update them.

Once datasets are final, the data should be appended to the master geodatabase, which contains data from all sampling years. The GDB is stored in N:_Archive_Special_Access\Archive-Monitoring\Invasives\Master. Data should be appended to both the *Field Points* and *Survey Date* feature classes.

Avenza Map Download

Connect the Android to your computer and navigate to the *Download* folder (This PC\Galaxy Tab Active5 5G\Internal storage\Download). Sometimes the file takes a while to appear in the *Download* folder and you might need to disconnect and reconnect the cable.

Copy the KML files to N:\Monitoring\ISED\ISED_Data\Seasonal_Data\YEAR\KMLFiles.

These KML files can be added to a map using the KML to Layer tool in ArcGIS Pro.

Tracklines should be converted to geodatabase format and added to the annual geodatabase (ISED_YEAR_Final.gdb). This should also be appended to the master geodatabase.

Hard Copy Scanning

If datasheets were used, they need to be scanned and the data need to be digitized. This is very rare, but if it occurs, see the Data Manager for the best process to follow.

Any field notebooks should be scanned.