DATA ENTRY VALIDATION

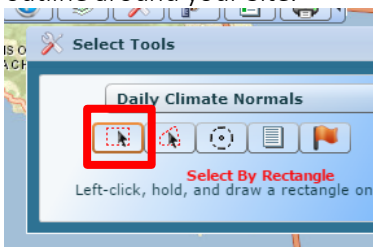
SITE-SPECIFIC REGIONAL DATA ENTRY

The Site setup process involved five steps:

Step 1. Site Location
Step 2. Site Border
Step 3. Site Name
Step 4. iPad Base map
Step 5. Site Questions

In this step you will answer the site questions in step 5. This information must be complete prior to generating results. Table 1provides directions for answering these questions.

Table 1. Directions for answering relevant regional questions for the Site

Question	URL	Directions
What is the annual mean summer high temperature (F)?	You will need the name of the NOAA observation station closest to your site. Click here to find this station: https://gis.ncdc.noaa.gov/map/viewer/#app=cdo&cfg=cdo&theme=normals&layers=01&extent=-139.2:12.7:-50.4:57.8	• Zoom to area surrounding the Site and use the selection tool to draw an outline around your Site.  • A results window will show the closest station. Note the name of the observation station. • Next, find the observation station you just identified at a new URL: http://www.ncdc.noaa.gov/cdo-web/datatools/normals. On this page, click on the **Annual/Seasonal Normals** tab. • Select the state and the station identified in previous steps. • Enter the temperature shown in Summer, "MAX TMP (˚F)". Stay on this screen to input the next value.

Question	URL	Directions
What is the annual mean summer temperature (F)?		• Enter the temperature shown in Annual, "AVG TMP (˚F)". Stay on this screen to input the next value.
What is the mean annual precipitation (in)?		• Enter the precipitation value shown in Annual, "PRECIP (IN)".
What is the average annual solar radiation per month (kWh/m/day)?	http://www.nrel.gov/gis/mapsearch/	• On the left navigation bar, under **Technology/Theme**, select "Solar-10km". • Check the appropriate boxes for the **Country/Continent** and **State** for your Site. • Click on any of the maps available and locate the kWh/m^3/day range for your Site.
What is the mean precipitation expected in 24 hrs. for a 25-year storm event?	http://hdsc.nws.noaa.gov/hdsc/pfds/pfds_map_cont.html	• Zoom in to locate your Site. • Move the red crosshair to your Site or double click on your Site to move the crosshair to your Site. • A table with estimated precipitation values in different temporal scenarios will appear below the map. • In the Duration column, find the "24-hr" row and follow it across to the left to the 25-year average recurrence interval. • Enter the value shown. Stay on this screen to input the next value.
What is the mean precipitation expected in 24 hrs. for a 2-year storm event?		• In the Duration column, find the "24-hr" row and follow it across to the left to the 2-year average recurrence interval. • Enter the value shown.

Question	URL	Directions
What is the wind power class present?	http://www.nrel.gov/gis/mapsearch/	• On the left navigation bar, under **Technology/Theme** select "Wind-50m". • Check the appropriate boxes for the **Country/Continent** and **State** for your Site. • Click on a Wind Resource Map (these are the same maps in different formats). • Locate the Wind Power Class for the location of your Site.
What is the average number of days in the growing season?	http://geonetwork3.fao.org/fggd/map/?map=FGGD_4_2	• On the left navigation bar click to expand the "Map 4.2: Length of growing period (LGP) zones of the world". • Zoom in to the location of your Site. • Enter the growing period range of days for your Site.
Latitude	http://www.worldatlas.com/aatlas/findlatlong.htm	• Type in the address, city, country, province, state, or zip code and click on Submit. • Enter the latitude value.
What is the mean relative humidity (%)?	http://www.shorstmeyer.com/wxfaqs/humidity/rh.html	• Find the nearest city to your Site. • Calculate the average of the M (morning) and A (afternoon) values under the last "ANN" (annual) column on the left.
What is the maximum monthly value for Average Incidental Solar Radiation (BTU/ft/day)?	Solar Radiation Data Manual for Buildings, available here: http://www.nrel.gov/docs/legosti/old/7904.pdf	• Go to page 7 of the document to see the list of page numbers for each state. • Go the page for the city closest to your Site. • In the **Average Incidental Solar Radiation** table, select the maximum monthly value in the first row (labeled Horizontal, Global).
Average Nitrogen removal rate (lbs/acre/year) ?	See Table 2.	• Use the pollution removal table to find the U.S. state that the site is located in and use the value found in the NO_2 column.

Question	URL	Directions
Average particulate matter (PM10) removal rate (lbs/acre/yr) ?	See Table 2.	• Use the pollution removal table to find the U.S. state that the site is located in. Use the value found in the PM_{10} column.

Table 2. Pollution removal table for relevant regional data

State	NO_2 (lbs/ac/yr)	PM_{10} (lbs/ac/yr)		State	NO_2 (lbs/ac/yr)	PM_{10} (lbs/ac/yr)
AL	10.38138	26.6917		NE	10.843	21.7004
AZ	13.0014	29.9863		NV	8.50266	27.7876
AR	4.65757	26.0831		NH	4.84696	10.3491
CA	17.2509	37.6825		NJ	17.3691	27.1908
CO	11.0392	16.7499		NM	6.48454	22.8537
CT	9.91897	16.1877		NY	11.5583	14.9886
DE	14.5915	28.7077		NC	8.01355	20.226
DC	14.7614	20.3629		ND	2.38562	6.54623
FL	10.1211	26.0489		OH	12.2119	21.3281
GA	7.36324	21.2075		OK	4.34658	25.5023
ID	8.36841	23.068		OR	11.34	16.3023
IL	14.6311	26.3798		PA	9.19346	17.8356
IN	9.60907	21.7268		RI	8.53401	20.8236
IA	13.0416	20.3064		SC	6.76735	23.7124
KS	6.55037	30.3839		SD	8.98414	12.4402
KY	10.0933	25.8013		TN	14.2276	36.7663
LA	7.56674	30.2595		TX	10.017	25.8955
ME	4.72455	12.586		UT	10.1726	26.2274
MD	16.4183	18.0565		VT	5.8757	14.7241
MA	10.254	15.0284		VA	8.72344	15.8078
MI	9.60335	18.9732		WA	11.34	17.9097
MN	11.0402	9.51206		WV	6.38609	14.6248
MS	8.13069	22.1935		WI	9.89068	14.6605

State	NO_2 (lbs/ac/yr)	PM_{10} (lbs/ac/yr)		State	NO_2 (lbs/ac/yr)	PM_{10} (lbs/ac/yr)
MO	9.46191	22.9198		WY	11.2393	17.8804
MT	2.38562	11.6645				

Source: iTree Vue (www.itreetools.org).

SPATIAL DATA ENTRY VALIDATION

In this step you will verify that the most recent spatial information created or edited using the ESII Field App has been uploaded to the ESII Project Workspace.

MATCH MAP UNIT BOUNDARIES BETWEEN THE ESII APP AND PROJECT WORKSPACE

Open the same Site, Data Collection Effort (DCE), and Scenario in both the App and the Workspace (Figure 1).

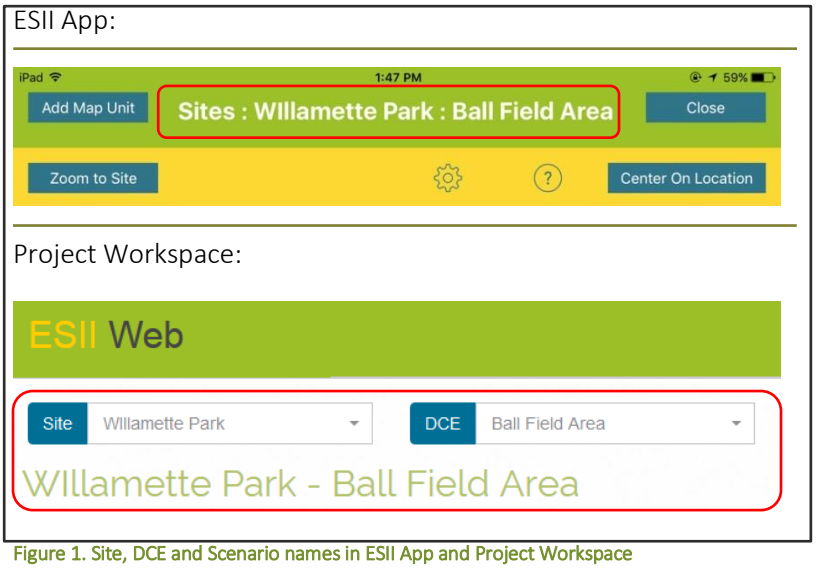


Figure 1. Site, DCE and Scenario names in ESII App and Project Workspace

Open the map view in both the ESII App and the Project Workspace (Figure 2).

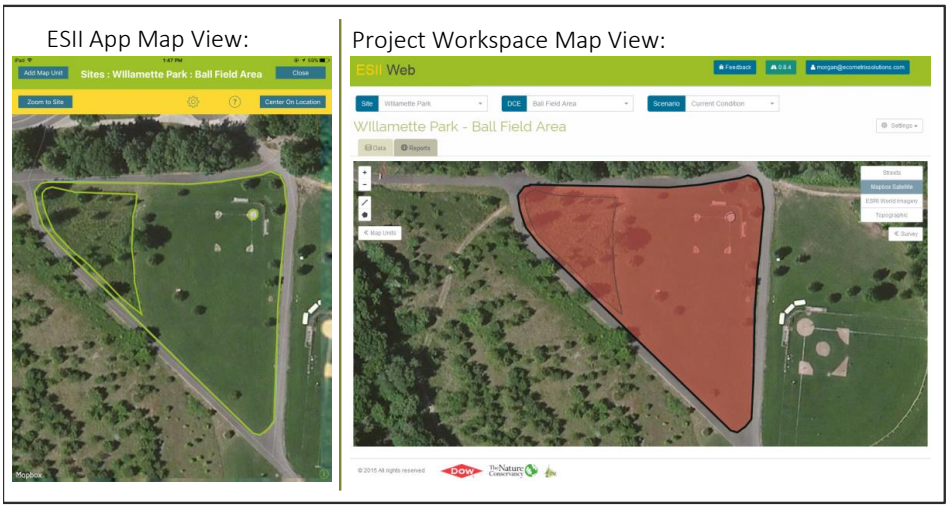


Figure 2. Site map view in both the ESII App and the Project Workspace

Compare the map unit boundaries in the two map views to ensure that they are the same (Figure 3).

Figure 3. Site map view in both the ESII App and the Project Workspace

If they are not the same, and the iPad is more up to date, sync the map units from the iPad to the Project Workspace. You can use the Upload button on the main Map Units screen or the Sync button on the ESII App's main Sites screen (Figure 4).

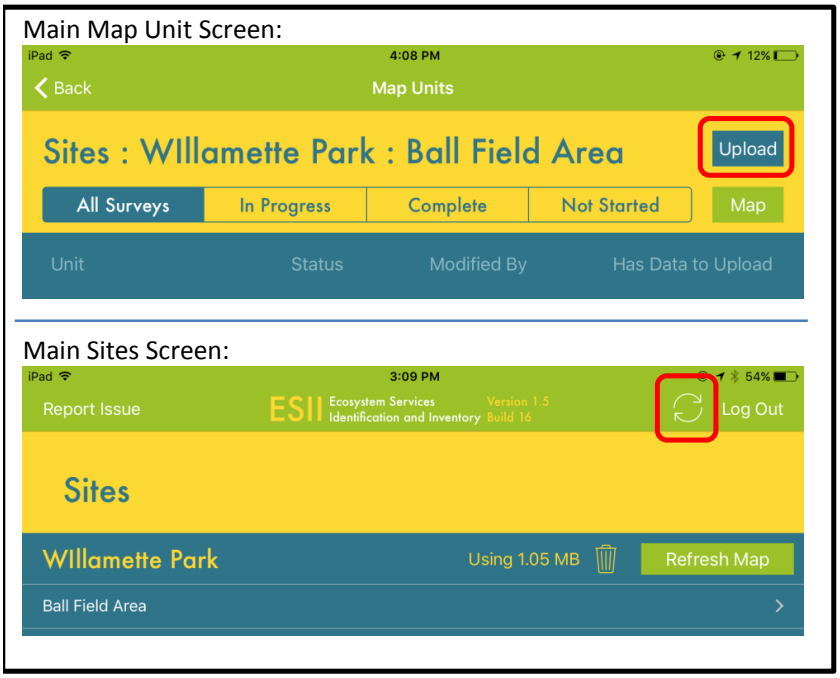


Figure 4. Upload and Sync button options in the ESII App

Now, using preloaded or site-specific background imagery, or design drawings, and the mapping tools available in the Project Workspace, you can edit and touch-up map unit boundaries (Figure 5).

Figure 5. Adjusting map unit boundaries

SURVEY DATA ENTRY VALIDATION

ENSURE THAT ANY RECENTLY COLLECTED SURVEY DATA HAVE BEEN UPLOADED

First, verify that mapping elements have been uploaded to the Project Workspace. Next, open the same Site, DCE, and Scenario in both the ESII App and the Project Workspace (Figure 6).

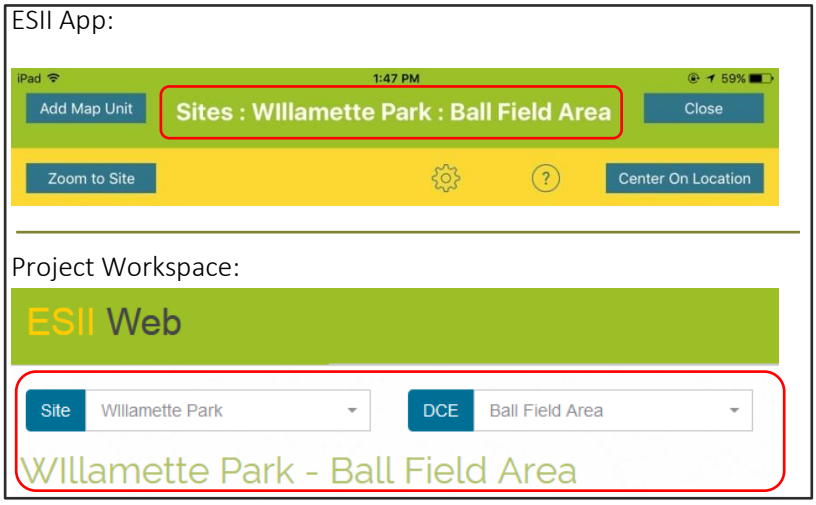
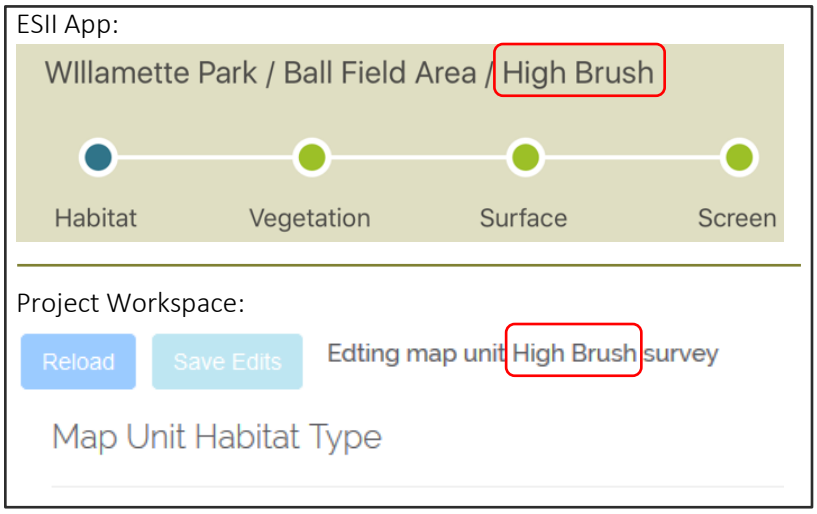


Figure 6. Site, DCE and Scenario names in ESII App and Project Workspace

Open the same survey in both the ESII App and the Project Workspace for a map unit that has recently had data collected on the iPad and should already be synced. Figure 7 shows the comparison of the map united labeled "High Brush". Open these surveys as though you were going to edit or add data to the survey in both the ESII App and the Project Workspace.



This process of comparing surveys in both the ESII App and Project Workspace is intended to help ensure that all data have been transferred to the Project Workspace. It is not ideal for validation or verification of actual values within surveys.

Figure 7. Current survey name identified on both the ESII App and the Project Workspace

Compare data that were recently collected using the ESII App to data in the Project Workspace to ensure that recent changes to the ESII App surveys were successfully synced to the Project Workspace (Figure 8 and Figure 9).

IPad data entry matches Project Workspace

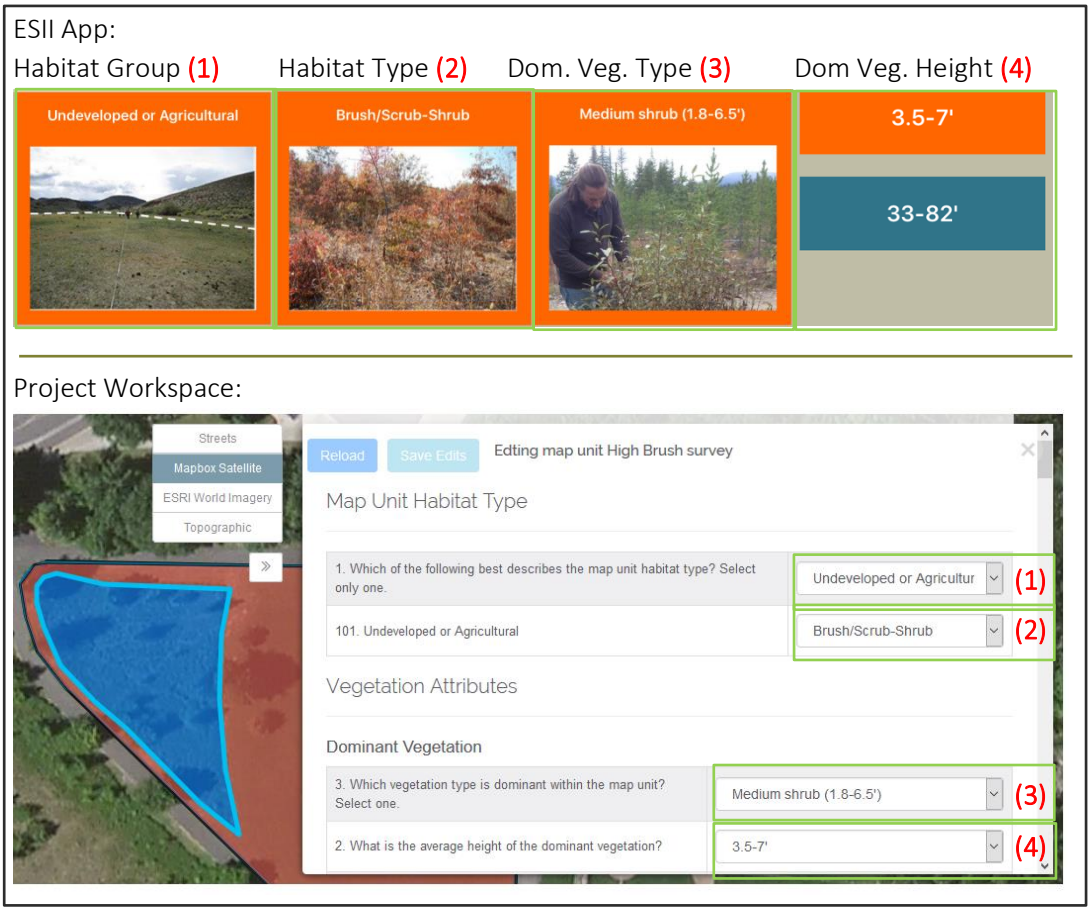


Figure 8. Matching survey answers in both the ESII App and the Project Workspace

IPad data entry does not match Project Workspace

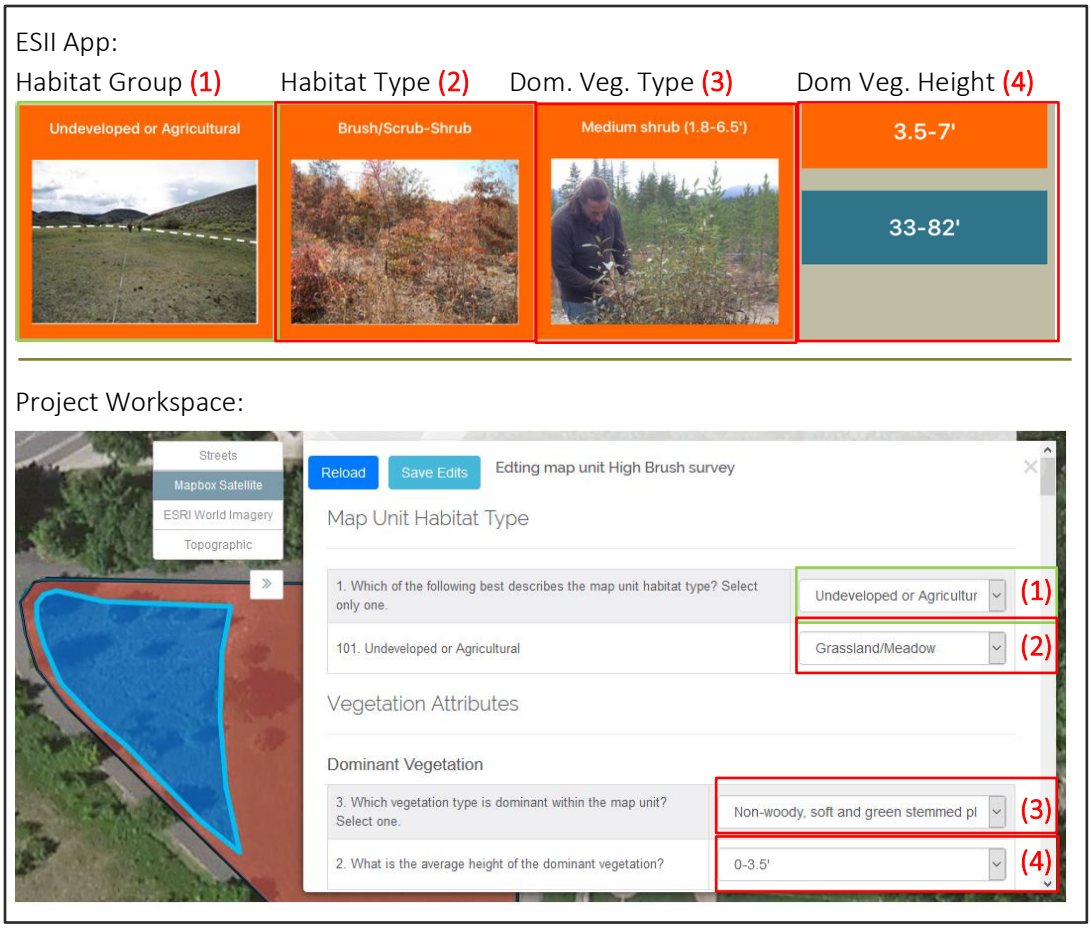


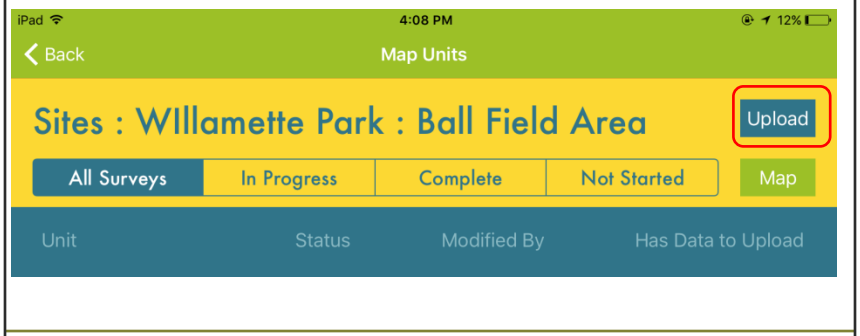
Figure 9. Mis-matched answers between the ESII App and the Project Workspace

If the data in the ESII App are more up-to-date than the data in the Project Workspace, re-sync the iPad (Figure 10).

NOTE

When syncing data from the iPad to the Project Workspace, keep in mind that the last sync 'wins'. This means that if you upload edits from one iPad, and then someone else uploads different edits from an older survey, the values in the Project Workspace will no longer be current.

Main Map Unit Page:



Main Sites Page:

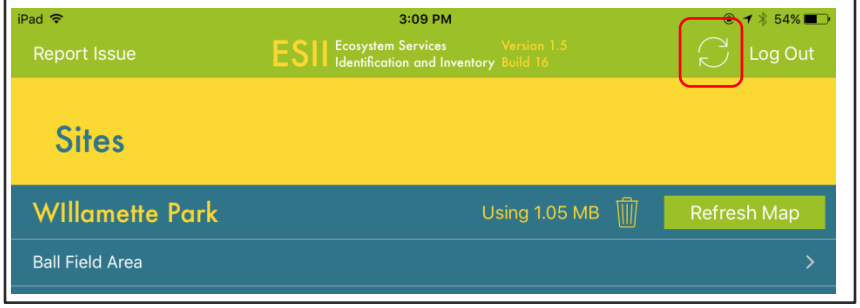


Figure 10. Upload and Sync button options in the ESII App

Confirm that all survey questions are answered for all map units. In the Project Workspace, verify this by looking at the % complete indicator to the left of the main view. If survey questions are not all completed, fill in the missing information (Figure 11).

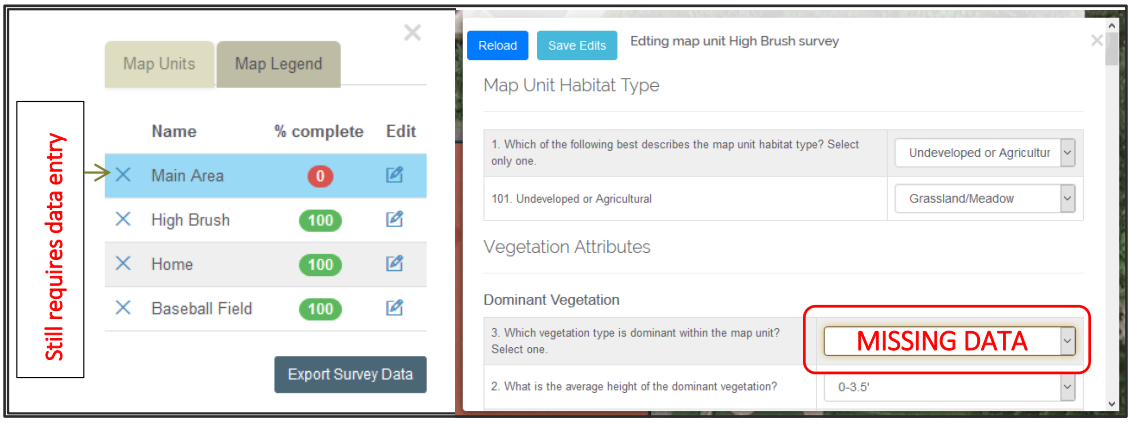


Figure 11. Example of missing data as viewed in the Project Workspace

REVIEW THE SURVEY DATA

To perform the initial review of survey data, download all of the input data for all of the map units in the Scenario using the Export Survey Data button at the bottom of the map unit list (Figure 12).

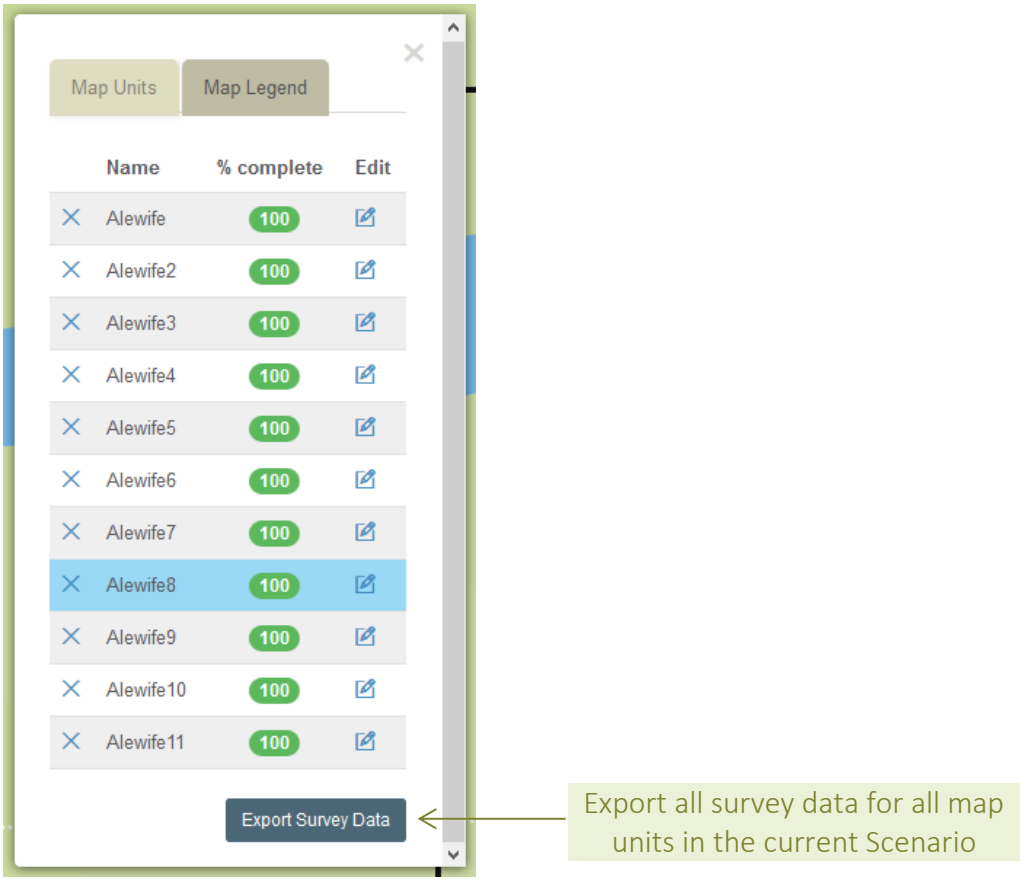


Figure 12. Map unit list in Project Workspace where survey data may be downloaded into a tabular format

The Export Survey Data button allows you to download all of the input attribute data for each map unit in a comma-separated value (CSV) format (Figure 13). The data can then easily be opened using software such as Microsoft® Excel. Group map units by habitat types and review the attributes that were collected for map units of the same habitat type.

	N	O	P	Q
1	Map Unit Name	Which of the following best describes the map unit habitat type? Select only one.	Habitat Type	Which vegetation type is dominant within the map unit? Select one.
2	Alewife7	Undeveloped or Agricultural	Bare Ground	Only aquatic vegetation present
3	Alewife10	Undeveloped or Agricultural	Brush/Scrub-Shrub	Medium shrub (1.8-6.5)
4	Alewife11	Undeveloped or Agricultural	Brush/Scrub-Shrub	Sapling/pole (1-9 dbh)
5	Alewife4	Undeveloped or Agricultural	Grassland/Meadow	Non-woody, soft and green stemmed plants
6	Alewife6	Undeveloped or Agricultural	Grassland/Meadow	Non-woody, soft and green stemmed plants
7	Alewife2	Developed or Managed	Landscaped Areas	Medium shrub (1.8-6.5)
8	Alewife	Undeveloped or Agricultural	Mixed Forest/Grassland	Medium tree (15-19 dbh)
9	Alewife9	Undeveloped or Agricultural	Mixed Forest/Grassland	Medium shrub (1.8-6.5)
10	Alewife3	Developed or Managed	Pervious Area: Trail, Road, Staging Area, Compacted Gravel, Etc.	No vegetation present
11	Alewife5	Aquatic	Pond	Only aquatic vegetation present
12	Alewife8	Aquatic	Stream/River (Perennial)	Only aquatic vegetation present

Figure 13. Example map unit survey data in tabular format

For example, assume you see that map unit **Alewife10** has values for ecosystem services or functions that are substantially different than the surrounding map units. Upon further inspection you find that the Habitat Type for **Alewife10** is the same as it is for **Alewife11** — both are "Brush/Scrub-Shrub". However, when you compare dominant vegetation types between the two map units, you find that for **Alewife10** the attribute value is "Only aquatic vegetation present", but for **Alewife11** it is "Sapling/Pole (1-9dbh)" (Figure 14). To resolve this discrepancy, the data collector(s) should be consulted to determine the actual dominant vegetation for those map units. Corrections can be made via the Project Workspace or the ESII App. Figure 15 shows the change to "Medium shrub (1.8-6.5")" as the dominant vegetation type.

16	Map Unit Name	Which of the following best describes the map unit habitat type? Select only one.	Habitat Type	Which vegetation type is dominant within the map unit? Select one.
17	Alewife7	Undeveloped or Agricultural	Bare Ground	Only aquatic vegetation present
18	Alewife10	Undeveloped or Agricultural	Brush/Scrub-Shrub	Only aquatic vegetation present
19	Alewife11	Undeveloped or Agricultural	Brush/Scrub-Shrub	Sapling/pole (1-9 dbh)
20	Alewife4	Undeveloped or Agricultural	Grassland/Meadow	Non-woody, soft and green stemmed plants
21	Alewife6	Undeveloped or Agricultural	Grassland/Meadow	Non-woody, soft and green stemmed plants
22	Alewife2	Developed or Managed	Landscaped Areas	Medium shrub (1.8-6.5)
23	Alewife	Undeveloped or Agricultural	Mixed Forest/Grassland	Medium tree (15-19 dbh)
24	Alewife9	Undeveloped or Agricultural	Mixed Forest/Grassland	Medium shrub (1.8-6.5)
25	Alewife3	Developed or Managed	Pervious Area: Trail, Road, Staging Area, Compacted Gravel, Etc.	No vegetation present
26	Alewife5	Aquatic	Pond	Only aquatic vegetation present
27	Alewife8	Aquatic	Stream/River (Perennial)	Only aquatic vegetation present

Figure 14. Dominant vegetation type showing a possible data entry error where a habitat type of "Brush/Scrub-Shrub" is unlikely to have "Only aquatic vegetation present"

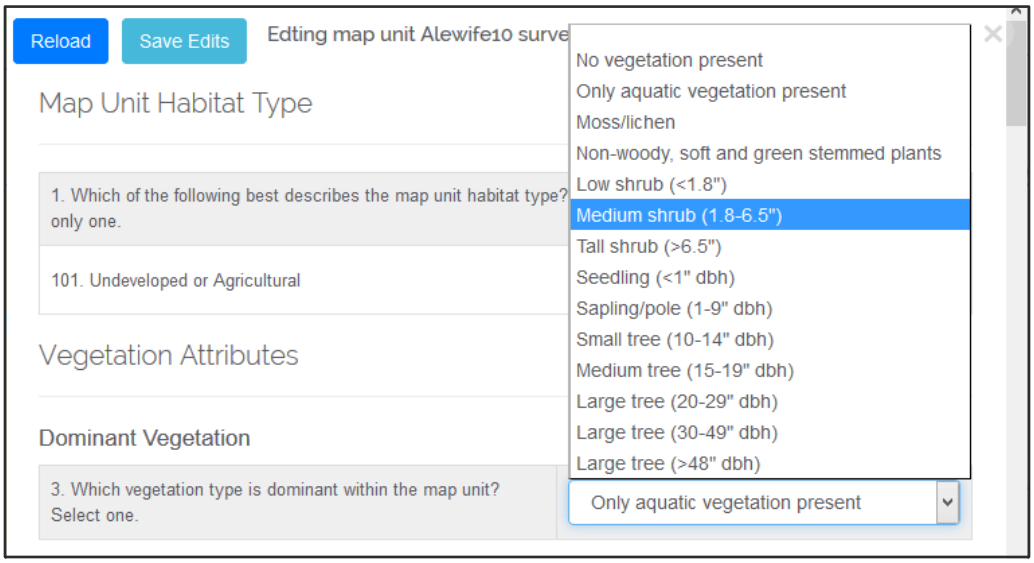


Figure 15. Making changes to survey data in the Project Workspace