HISTORICAL OCCURRENCE EVALUATION TUTORIAL

ABOUT THIS TUTORIAL

In this tutorial, you will learn to do the following:

- Use the 2010 baseline inventory dataset to check for historical occurrence in 1980s photography and properly attribute the dataset
- Split features in the 2010 baseline inventory dataset to reflect their changing status throughout time (1980, 2010, 2016)

Change over time can be a challenging thing to track and represent using GIS. Over the course of this project, the documentation process has evolved as additional elements were added and as we learned better ways to represent changes. The 2010 baseline dataset is the template for examining the presence or absence of conservation practices in additional years of photography. As the project evolved from one static year of data to examining additional years of imagery, it has become important to create clear columns for distinguishing each year examined.

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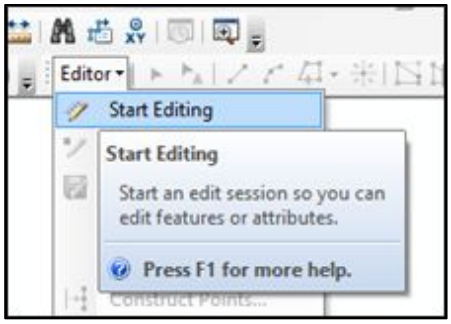
USING IMAGERY FOR HISTORICAL DATING AND UPDATING FROM THE BASELINE INVENTORY

The general workflow of this project is to use the 2010 baseline inventory feature classes as a guide to check the presence or absence of the practice in the past. This tutorial will provide a general example of how to do dating using both 1980s and 2016 imagery.



1. Open the HUC project: **Tutorial_2_070802050809.mxd**, found in the Tutorial_2 folder.

2. Begin an editing session, click on the **Editor** menu on the **Editor** toolbar and click **Start Editing**.

*If the Editor toolbar is not docked with your toolbar, you will need to add it. Go to **Customize** > **Toolbars** > **Editor**. It should then dock with your toolbars.*

3. Examine the **Pond Dam layer** overlaid on the **ortho \ ortho_2007_2010_cir**. Choose the first bookmark, Pond Dam example 1. This will give you a reference for examining the 1980s imagery.

2010 CIR image with pond dam (yellow line).

4. Turn on the **1980s imagery, ortho \ ortho_1980_cir**. You will notice that there is no visible pond dam in this photo.

1980 CIR image overlayed with 2010 baseline inventory pond dam (yellow line), pond dam absent in 1980.

5. Click on the **Pond Dam** on the map.

6. Open the **attribute table**. The pond dam record should be highlighted in the table.

Table

POND_DAM

OBJECTID *	SHAPE *	PRACTICE	NRCS_CODE	Present80s	DATE_CREATED	HUC_12	COMMENTS	CREATOR_NAME	LAST_EDITOR	LAST_EDIT_DATE
1	Polyline	Pond Dam	378	No	4/15/2015 1:07:16 PM	<Null>	<Null>	AJS	<Null>	<Null>
2	Polyline	Pond Dam	378	Yes	4/15/2015 1:07:16 PM	<Null>	<Null>	AJS	<Null>	<Null>
3	Polyline	Pond Dam	378	No	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
4	Polyline	Pond Dam	378	<Null>	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
5	Polyline	Pond Dam	378	Yes	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
6	Polyline	Pond Dam	378	No	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
7	Polyline	Pond Dam	378	No	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
8	Polyline	Pond Dam	378	No	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
9	Polyline	Pond Dam	378	No	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
10	Polyline	Pond Dam	378	Yes	4/20/2015 4:26:15 PM	<Null>	<Null>	AJS	<Null>	<Null>
11	Polyline	Pond Dam	378	Yes	4/23/2015 2:49:54 PM	<Null>	<Null>	AJS	<Null>	<Null>
12	Polyline	Pond Dam	378	Yes	4/23/2015 2:49:54 PM	<Null>	<Null>	AJS	<Null>	<Null>
13	Polyline	Pond Dam	378	No	4/23/2015 2:49:54 PM	<Null>	<Null>	AJS	<Null>	<Null>

3 (1 out of 32 Selected)

POND_DAM

7. Find **Present80s** column. Use the drop down menu to select **No**.

2016 CIR imagery with new pond dams digitized

8. Turn on the **2016 CIR imagery, ortho\ortho_2016_middle_cedar**, you will see four new pond dams. **Digitize** the **pond dams** by drawing a line for each dammed edge.

9. **Edit** the **attribute table** to reflect these new pond dams. Fill in the fields: **CREATOR_NAME (your initials), DATE_CREATED (today's date), PRESENT80s (NO), PRESENT2010 (NO), and PRESENT2016 (YES).**

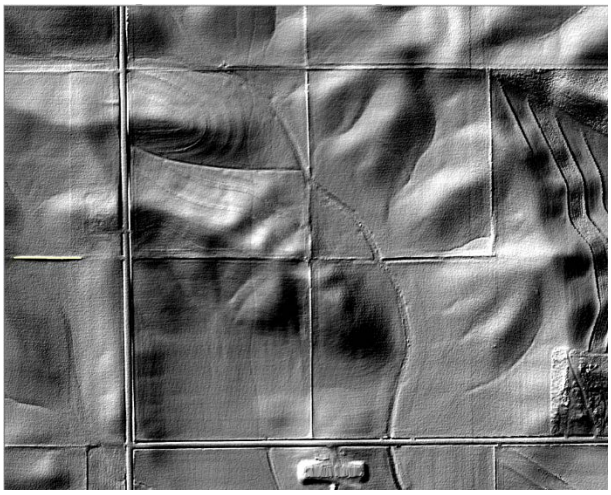
MODIFYING A PRACTICE FROM THE BASELINE INVENTORY TO REFLECT HISTORICAL CHANGE

In the next example, we will be looking at how to modify the 2010 baseline inventory dataset to represent the data for the 1980s by splitting the practice.

1. Go to **Bookmarks** and find **Example 2 Grassed Waterway**.

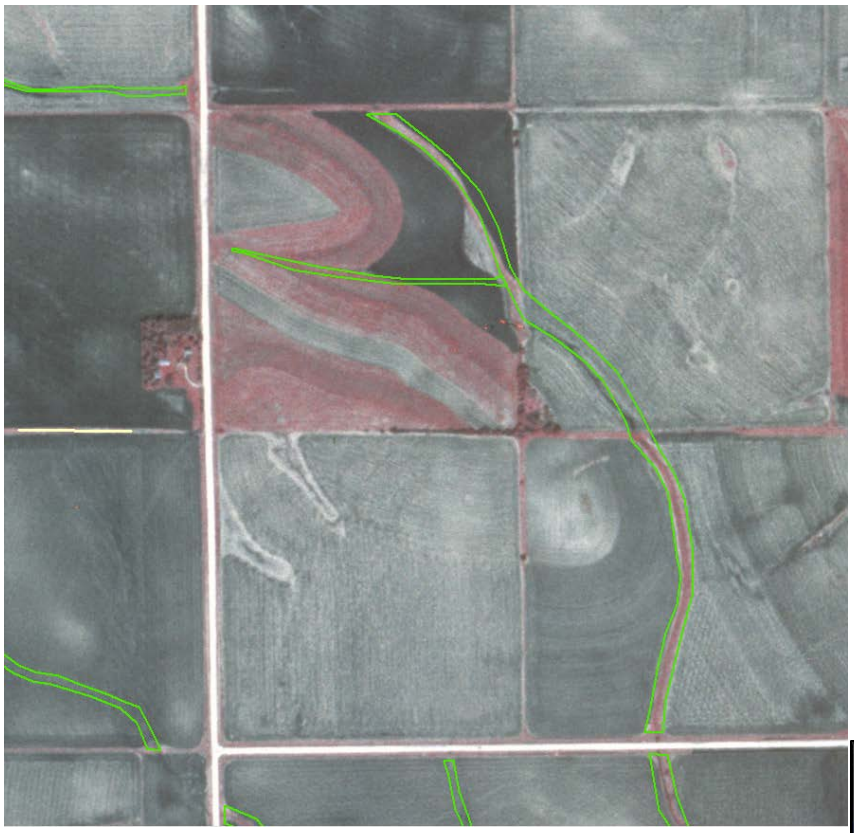
2. Turn off the **Pond_Dam layer** and turn on **Grassed_Waterways layer**.

3. Turn on imagery **ortho\ortho_2007_2010_cir**. Notice a long grassed waterway. Review with **hillshade layer, ortho\lidar_hs.**



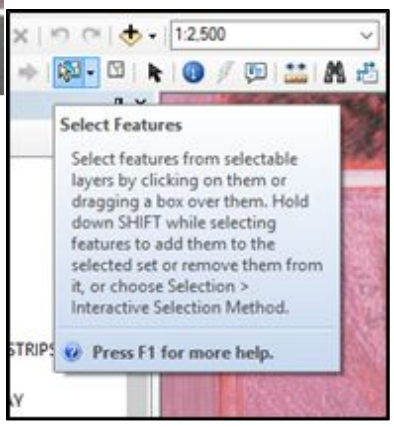
4. Turn on **1980s imagery, ortho\ortho_1980_cir**.

There are two differences with the 2010 imagery. The grassed waterway "finger" is missing and part of the main grassed waterway channel is also missing in the 1980s photo. To modify the grassed waterway channel will require splitting the polygon.



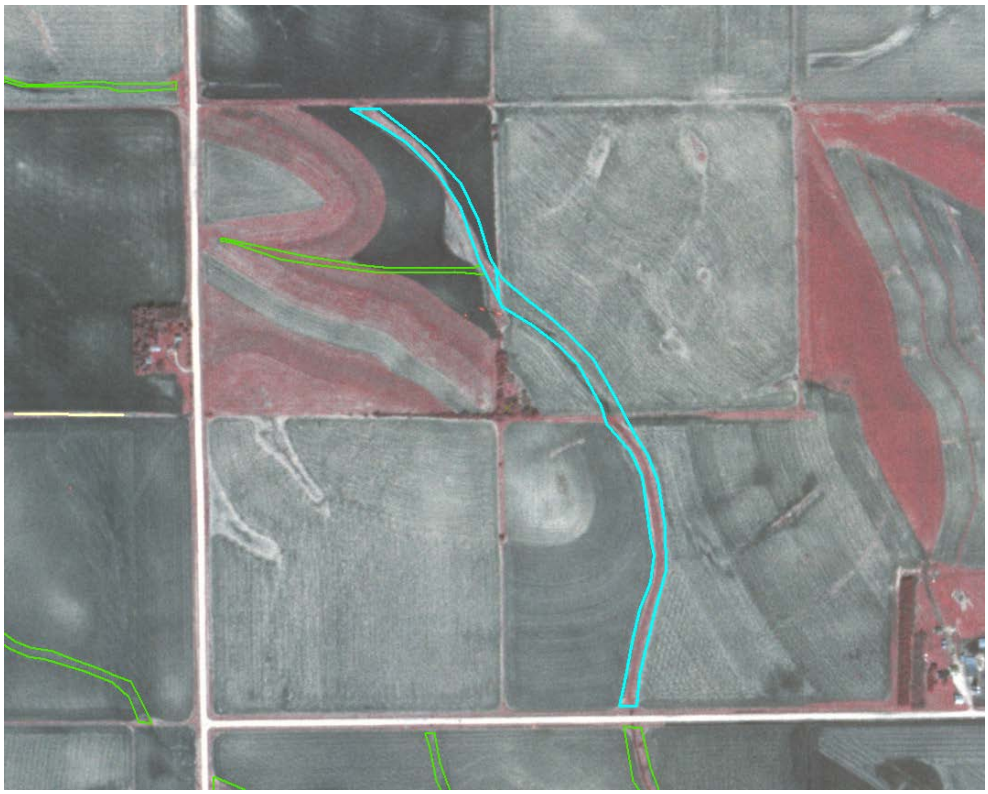
5. Start an **editing session**. See page 3 for details.

6. Use **Select Features tool** to select the major grassed waterway channel.



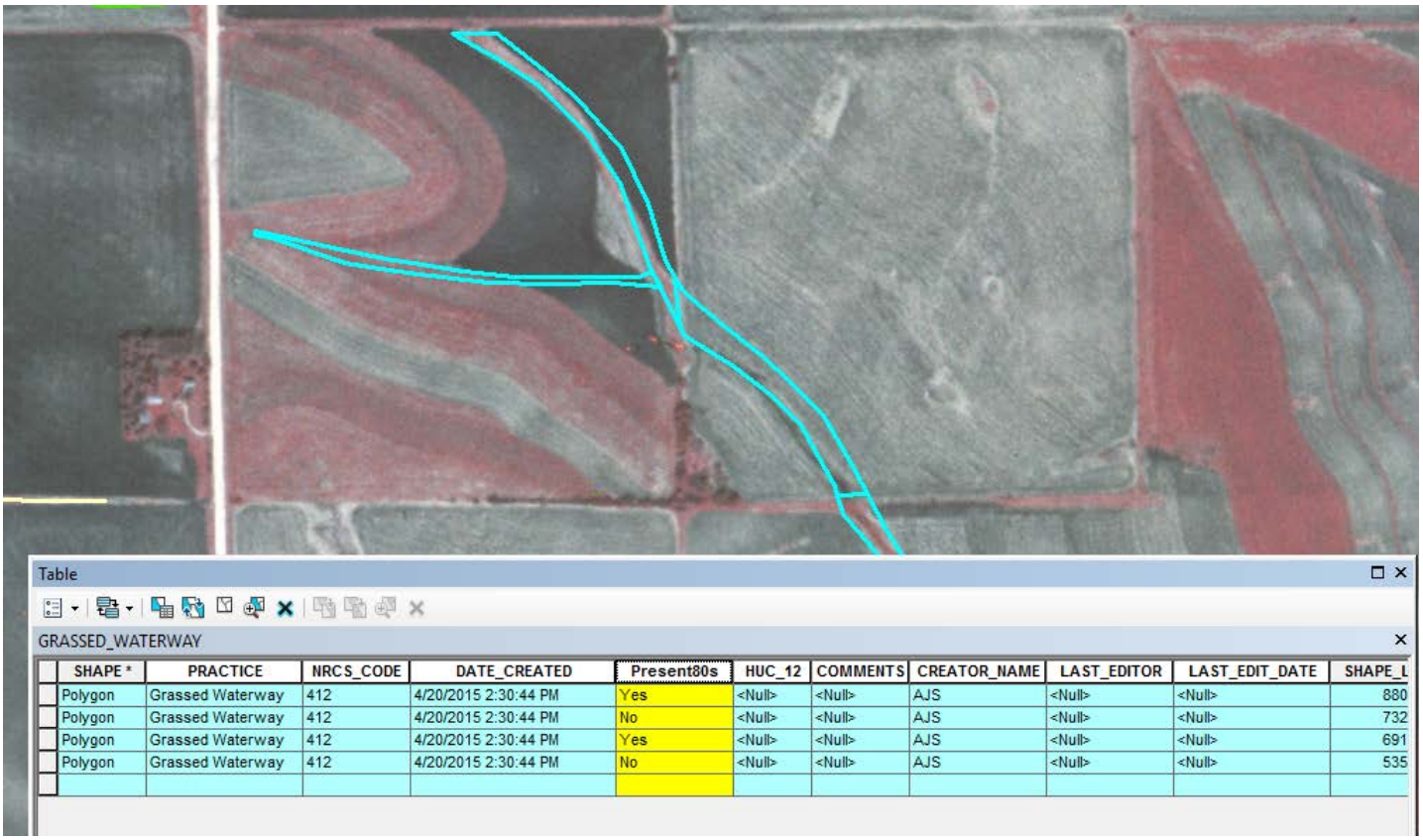
7. Use the **Cut Polygon tool** from the Editor Tool bar.

8. **Make a cut** by drawing a line across the polygon at the place where the grassed waterway is missing.



9. **Make a second cut** where the grassed waterway begins again.

10. **Select all 4 pieces of the grassed waterway** and review them in the attribute table. Edit the table to reflect the changes you have made to reflect the 1980s imagery.



Table

GRASSED_WATERWAY

SHAPE *	PRACTICE	NRCS_CODE	DATE_CREATED	Present80s	HUC_12	COMMENTS	CREATOR_NAME	LAST_EDITOR	LAST_EDIT_DATE	SHAPE_L
Polygon	Grassed Waterway	412	4/20/2015 2:30:44 PM	Yes	<Null>	<Null>	AJS	<Null>	<Null>	880
Polygon	Grassed Waterway	412	4/20/2015 2:30:44 PM	No	<Null>	<Null>	AJS	<Null>	<Null>	732
Polygon	Grassed Waterway	412	4/20/2015 2:30:44 PM	Yes	<Null>	<Null>	AJS	<Null>	<Null>	691
Polygon	Grassed Waterway	412	4/20/2015 2:30:44 PM	No	<Null>	<Null>	AJS	<Null>	<Null>	535

General historic dating/updating principles:

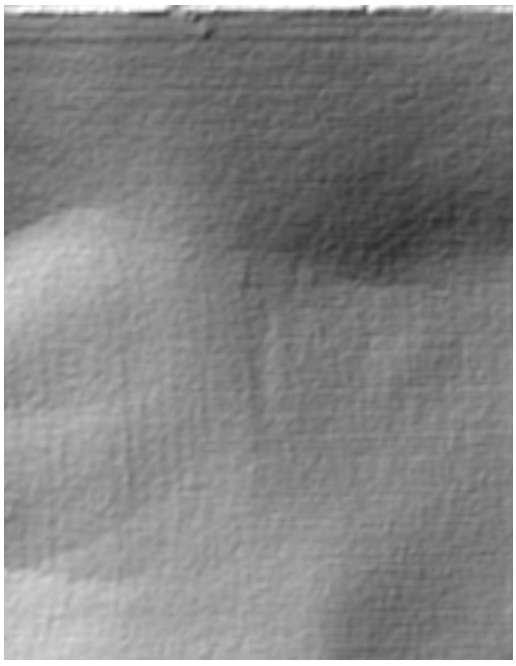
- Begin by reviewing the baseline inventory practices using the 2010 imagery.
- Compare the baseline inventory practices to the 1980s imagery.
- In the case of terraces, if the imagery is not clear enough to determine the practice, use older imagery to compare. Review the hillshade to see if it offers useful context clues.
- Make your best judgement based on your source information.
- Rule for splitting practices: if the area added or removed is greater than ¼ of the original practice then edit to show the change. Note: there will be some variation from year to year but only capture major changes.

ADDITIONAL VISUAL EXAMPLES FOR UPDATING INVENTORY PRACTICE CHANGES

Here are two additional examples of changes that have occurred in more recent imagery. There are not bookmarks for these locations.

A. Notice the bare field in the 2010 CIR.

B. Examine the hillshade. It confirms the absence of a practice.

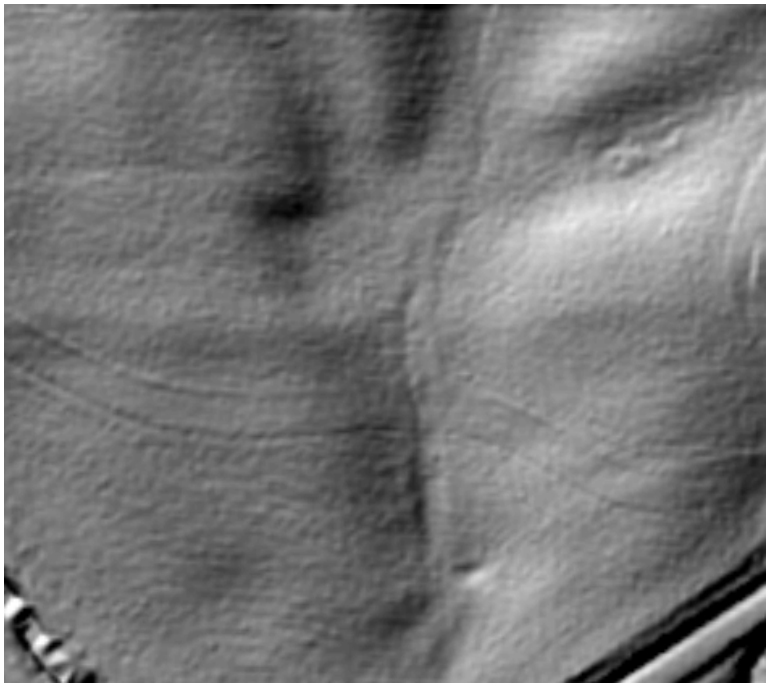


C. Now view the 2016 image.

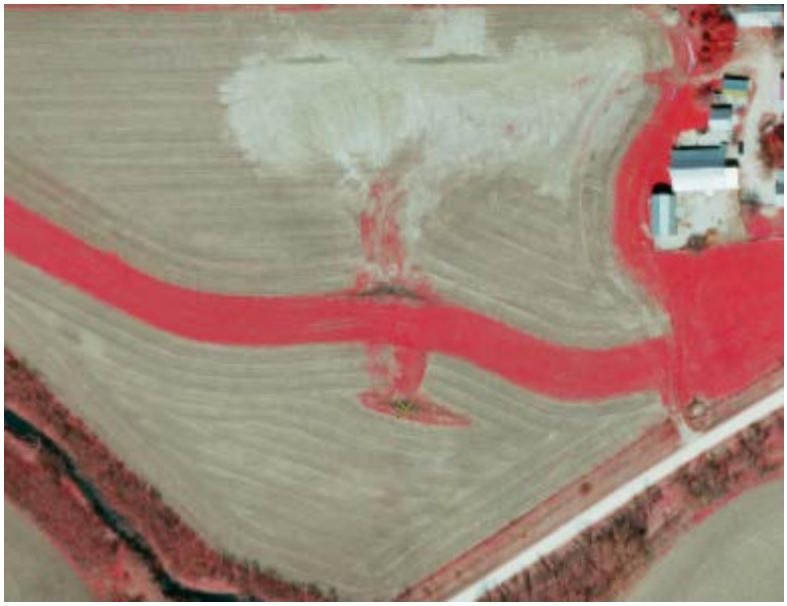
D. A new terrace has been established. It will need to be digitized and attributed appropriately.

A. Notice a contour buffer strip and a grassed waterway in the 2010 CIR.

B. Examine the hillshade. It confirms the contour buffer strip and depression of a grassed waterway.



C. Now view the 2016 image.



D. Two WASCOBs have been established and the grassed waterway removed. They will need to be digitized and attributed appropriately.