ELUCID Land Protection Theme Tutorial

The South Branch Flint River Watershed Management Plan (http://www.michigan.gov/documents/deq/wrd-nps-sbr-flint-wmp_394448_7.pdf) identified Pine Creek as a critical area for restoration and its headwaters as a critical area for preservation. The plan states that the “riparian corridor has been significantly altered” by human activity. Several gully erosion sites were also suspected within the subwatershed. The plan calls for several actions to restore the riparian corridor of Pine Creek, including implementing best management practices that reduce sediment. It also calls for the preservation of areas that are considered high quality.

Using the Flint River Watershed ELUCID System, complete the following tasks:

I. Access the Land Protection theme and locate Pine Creek
II. Explore protected land data available in ELUCID for Pine Creek
III. Identify one site that may be suitable for preservation efforts

Access the Land Protection theme and locate Pine Creek

Step 1: Getting to the map

– On the ELUCID main page, locate the Land Protection mapping theme and click on its blue header.

– From the theme’s menu, click on “Go to Land Protection Map” beneath the theme’s header. You will be directed to the Land Protection map.
Step 2: Understanding and using map layers

- A map layer is a visual display of geographic information on a map. The “Map Content” window contains all of the map layers.

- The Subwatershed, Stream, Waterbody, Concentrated Flow, Gully Erosion Potential, Genesee LIDAR DEM, and sediment layers are automatically loaded on the Land Protection map.

- The Flint River Watershed layer group contains the majority of map layers and has four subgroups: Base Maps, Water Quality Maps, Land Protection Maps, and Physical Maps.

- Layers that are “turned on” and visible on the map have a checked box next to their name. Layers can be turned off by unchecking the box.

- Layer groups can be expanded by clicking on the “+” sign next to their name. They can be collapsed by clicking on the “-” sign.

- The slider bars underneath Flint River Watershed and HIT Sediment/Erosion adjust transparency of layers nested under those groups.

Step 3: Locate the Pine Creek Subwatershed

- Click on the “Search Location” tab above “Map Content.” This will open up the “Search Location” window.

- Select “Pine Creek - South Branch Flint River” using the dropdown menu underneath “Select a watershed.”

- Click on the “Find” button.

- The map will zoom in on the subwatershed and shade it in black. Note that it may take a few seconds for the system to locate the subwatershed.
Explore land protection data available in ELUCID for Pine Creek

Step 1: Turn on the Conservation and Recreation Land layer

- Return to the “Map Content” window by clicking on the “Map Content” tab, which is now located at the bottom of the sidebar.

- Scroll down in “Map Content” until you see the HIT sediment layer. Turn this layer off by unchecking the box next to its name.

- Scroll up in “Map Content” and turn on the Conservation and Recreation Land layer within Land Protection Maps. This layer was developed by Ducks Unlimited with the help of several contributing organizations. Learn more at http://www.ducks.org/conservation/glaro/carl-gis-layer.

- The black shading may make it difficult to view this layer. The quickest way to remove the shading is to trigger the Identify tool by left-clicking once on the map. The Identify tool allows you to access additional information about particular layers on the map. When triggered, a popup window will appear and it will remove the black shading.

- The legend in “Map Content” indicates the type of conservation and recreation land (e.g., campground, easement, park). Click on the large purple swath located near the watershed’s southwestern border to trigger the Identify tool. Purple indicates a site is a campground.

- The popup window will appear with the “Watershed” tab open. Click on the down arrow at the top right of the Identify window to bring up a list of data layers with which this function can be used. Select “Conservation & Recreation Land.”

- This area is the Detroit Area Boy Scout Council’s campground (the D-Bar A Scout Ranch).

- Use the “Identify” function and the map legend to learn more about the other conservation and recreation lands in Pine Creek.

- There are two gravel pits, the Boy Scout campground, a park, designated utility corridor stretches and a conservation easement on Mt. Morris Road.

Conservation and Recreation Lands layer turned on with the Identify tool triggered.
Step 2: Turn on the Wetland layer

- Turn off the Conservation and Recreation Land layer by unchecking the box next to its name in “Map Content.”

- Scroll down in “Map Content” until you see Physical Maps. Click on the “+” sign next to the layer group’s heading. Do not check the box as doing so will turn on all layers within that group.

- Layers nested within Physical Maps will appear under “Map Content.” Check the box next to Wetland to turn on this layer. This layer distinguishes between eight different kinds of wetlands.

- View the legend under “Map Content” to determine what kind of wetlands are in Pine Creek.

- The subwatershed has several types of wetlands scattered throughout its boundaries, though it appears that lowland hardwoods are the majority.

Step 3: Turn on the Potential Wetlands Restoration layer

- Turn off the Wetland layer by unchecking the box next to its name.

- Scroll back up to “Land Protection Maps” and turn on the Potential Wetland Restoration layer by checking the box next to its name.

- This layer, compiled by MDEQ, shows areas where wetlands existed prior to settlement (low potential), have hydric soils today (moderate potential), or both (high potential).

- In Pine Creek, the northern portion of the subwatershed has patches of potential restoration areas, including some contiguous swaths of high potential areas. Other potential wetland restoration areas are scattered throughout the watershed.
Identify one site that may be suitable for preservation efforts

Step 1: Use the Wetland and Potential Wetland Restoration layers to identify an area of focus

- Leaving the Potential Wetland Restoration layer on, toggle the Wetland layer on/off to assess which potential wetland restoration areas are adjacent to existing wetlands.

Step 2: Zoom-in on the potential site

- Click on “Zoom In” from the toolbar located above the map.

- Draw a box around the area you want to zoom to. The map will zoom-in at that location.

- Scroll to the very bottom of “Map Content” and turn on the Aerial Photos layer.

- Repeat the zooming process until you can clearly see the area.

- Deactivate the zooming tool by hitting the “Deactivate” button from the map toolbar. If you forget to do this and go to pan the map, the zoom tool will still be active. If this happens, click on the “Previous Extent” button from the toolbar and then deactivate the zooming tool.

- You may want to adjust the transparency of the Flint River Watershed layer group by moving the slider bar at the very top of “Map Content” to the left.

Step 3: Turn on the HIT sediment layer

- Scroll towards the bottom of “Map Content” and turn on the sediment layer underneath the HIT Sediment/Erosion layer group.

- This layer depicts agricultural areas predicted by the HIT model to be at risk for sediment loading using pink and red pixels. Darker HIT pixels indicate land areas at greater risk for sediment loading than areas with pink pixels.

- Locate an area designated as high potential that is also marked as a high risk site by the HIT model.
Potential Wetland Restoration and Wetland layers slightly transparent over the HiT sediment layer.

Step 4: Use the “Print” function to save an image of the subwatershed

- Click on the “Print” button from the toolbar above the map.

- This will open a new tab within your browser containing an image of the map.

- Right-click and select “Save image as…” and save the image to a specified location on your computer.

- At this time, the ELUCID “Print” function only works with the Flint River Watershed layer group. This means that data layers from HIT Sediment/Erosion and any of the basemap layers (Cities and Townships, Roads, Aerial Photos) will not appear in the image. Workarounds are discussed below.

- Windows Vista and up: Open up the “Snipping Tool” from your computer’s “Accessories” folder. Select “New” and draw a box around ELUCID’s map. Hit “Save.” Older versions of Windows: Hit the “Prt Sc” button on your keyboard. Open up Word or Paint, paste the image, and save. Macs: Hit “Command” > “Shift” > “3” on your keyboard to take a screenshot. Save the file to your computer.