Tutorials

Landsat Land Cover Classifications

- 1. Open ArcGIS and import the study area's counties layer and the Landsat composite image.
- 2. Using the composite image, set the RGB bands to your preferred combination.
 - a. For this project, the team used the RGB combination 543 for Landsat 5 and 654 for Landsat 8.
- 3. Under the "Customize" tab, go to "Toolbars" and select "Image Classification."



- 4. This will open the "Classification" Toolbar.
- 5. In this toolbar, verify the Landsat composite image is selected.
- 6. Open the "Training Sample Manager."



7. Click on the "Draw Polygon" tool on the "Image Classification" toolbar.

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- 8. Draw polygons around the areas that you wish to classify as the same class by zooming in to the pixel level. It is recommended that you use at least 100 training samples (polygons) for each class, though more is better.
- Once you have collected a minimum of 100 training samples for a class, select all of the samples in the Training Sample Manager and click the "Merge Training Samples" tool. This will combine the samples into the same class.



- 10. Rename the class to whatever it represents (ex. Water)
- 11. Repeat steps 8-10 until you have all of the classes you want.
- 12. Once the classes have been created, be sure to save them.
- 13. Now click on the "Create A Signature File" tool on the "Training Sample Manager" window.
- 14. Name the file and save it. This may take a moment to finish saving.

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- 15. Next, select the dropdown menu on the "Image Classification" toolbar under "Classification."
- 16. Choose the "Maximum Likelihood Classification" option.



- 17. A new window will appear.
- 18. Click on the raster that you would like to run the classification on under the "Input Raster Bands." In this case, it is the Landsat composite image.
- 19. Under the "Input Signature File," navigate to your signature file and open it. The file type will be a .gsg.

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- 20. For the "Output Classified Raster," navigate to a folder where you would like to save the classification, give it a name, and then save it.
- 21. Leave all other options as default.
- 22. Hit "OK" and the classification will run. This may take some time depending on how many classes you have and the size of the study area.
- 23. When the program has finished with the classification, it will automatically appear in the table of contents.
- 24. ArcGIS will randomly assign colors to the classes so you will need to reassign the colors to something that is intuitive (ex. Forest as dark green). You can do this by left-clicking on the color and then choosing a color from the dropdown list.

